

COMPUTER WORLD

Microsoft casts object net NT to one-up Novell's NDS with transparent data access

By Elisabeth Horvitz

Microsoft Corp. revealed new details last week of the object-oriented services environment with which it hopes to leapfrog Novell, Inc.'s NetWare Directory Services. The environment will provide users with transparent and dynamic access to data, images and services across the enterprise.

The system is part of Microsoft's Cairo object extensions to NT, which is slated to ship sometime in 1995, Microsoft spokesmen said.

"This is a quantum leap over existing global directories," such as NetWare Directory Services, which still require users and applications to comprehend the network's functional and logical design "to locate a resource," said Claude King, senior systems analyst at the University of Florida's College of Journalism and Communications in Gainesville.

Building access

In contrast, Cairo will allow the user to build access to a given piece of data, graphic or service into an application so it can be called up at the click of an icon, King said.

Such items are assigned monikers, which an application would always use to call an object, independent of where and on what type of system it resides, said Lyle Griffin, vice president of advanced technology at Micrograph, Inc., a Richardson, Texas, software company.

Microsoft will continue to use the domain-based system it now employs for directory

searches so a moniker would be valid within a domain but might change between domains, he added. However, the moniker's attributes, such as a database or a network protocol needed to access the objects, could change.

As a result, applications always access key items in the same way, even if they have been
Microsoft, page 14

SOUND OFF!



► Businesscontrol

► Kruse

Are foreign programmers stealing U.S. jobs?

Yes, says Louis Businesscontrol, an American contract programmer who's been burned. But Steven Kruse, who hires out offshore workers, says these coders are a boon to the global economy.

For more on the debate, see In-Depth on page 122

IBM gives OK to NT on PowerPC

By Ed Scanell
and Michael Fitzgerald

IBM this week will grudgingly announce support for Microsoft Corp.'s Windows NT on the PowerPC.

The move appears to be a concession to NT's market potential and its ability to undermine OS/2 and WorkPlace OS.

The acknowledgment of NT gives IBM's Personal Software Products group one more thing to worry about in its up-hill battle against Microsoft for the hearts and pocketbooks of corporate users.

The announcement also comes as a particularly crucial time for OS/2. For the first time since its inception, the operating system appears to be gaining sales momentum on Intel Corp. platforms (CW Oct. 18).

NT support on the PowerPC may primarily hurt IBM's emerging WorkPlace OS, a microkernel-based environment that will es-

sentially be the PowerPC to run OS/2, AIX and Windows applications. The move will have minimal impact on OS/2 2.1, which currently works only on Intel platforms.

WorkPlace OS is scheduled to debut on the PowerPC in the first half of 1994. IBM hopes to show off what would be the first beta release at Comdex/Fall '93 this month.

But due to some technical snags, Personal Software Products may not be able to deliver the beta release until the first quarter of next year, pushing delivery of a final product to around mid-1994.

IBM will work with Motorola, Inc. to port Windows NT to its

PowerPC-based systems. How long it will take the two companies to complete the port is not clear, although most analysts say they suspect it will be available in the first half of 1994.

While IBM officials continue to say they are not sure just how serious IBM, page 16

DELIVERY DATES FOR
OPERATING SYSTEMS
THAT RUN ON
IBM'S POWERPC

AIX
CURRENTLY AVAILABLE

WorkPlace OS
FIRST HALF OF 1994

Windows NT
FIRST HALF OF 1994

APPLE SYSTEM 7.X
FIRST HALF OF 1994

Enterprise security on deck

By Joanne M. Winder

A trailblazing effort is afoot to put corporate America on a path to secure its data cohesively across distributed computing environments.

Next week, a fledgling group at Hughes Aircraft Co. will kick off what appears to be the first comprehensive crack at a centralized security scheme for network-based computing, according to sources close to the company.

The U.S. Department of Defense contractor is drawing on its wealth of expertise in using string-



Aside from Unix, Windows NT is the only desktop operating system with plans to integrate the government's Class C security scheme.

gent DOD standards to bulletproof its own computers and networks. It is poised to deliver the first in a series of products that collectively protect desktop and networked data.

The official announcement of the plan, which the company confirmed, is scheduled for the Computer Security Institute Show in Anaheim, Calif., this week.

The product is already in use at a number of unidentified government agencies and is in beta testing among several unidentified corporate sites, sources said.

The idea behind the initiative is to combine the various functional levels of security, which exist today largely as piecemeal products, into a cohesive software package that eventually

Security, page 8

Patent office eyes industry aid in vast database plan

By Gary H. Anshen
ARLINGTON, VA.

In a bold experiment in government/industry collaboration, the U.S. Patent and Trademark Office plans to sponsor development of an advanced text search and retrieval system for use by itself, other federal agencies and commercial enterprises.

A number of vendors, including IBM, Oracle Corp., Software AG of North America, Inc., Electronic Data Systems Corp. and Thinking Machines Corp., have expressed interest in supplying the system. Oracle has submitted an unsolicited proposal, patent officials said.

The patent office is looking for a system able to offer subsecond response to complex queries against terabytes of text data using massively parallel computers. In addition, the system must be able to filter and tailor data to minimize the amount of unwarranted information.

Patent, page 18

Data storage

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MANAGEMENT

Some negative reviews are starting to come in on Total Quality Management programs. IS executives generally remain supportive of the concept but say implementation can be very tricky. Harvey Shrednick, senior vice president of information services at Corning, warns that customer-averse attitudes can undermine quality efforts. **Page 87**



NEWS

Demand melts as Storage Tek continues to waffle on Iceberg's release date. **Page 4**

Developers and users are less than thrilled with OS/2's Common Desktop Environment. **Page 6**

Computer Associates promises delivery of an OS/2-based cross-platform systems management package by next April. **Page 8**

Cray jumps into commercial market with a SPARC-compatible supercomputer that can run RDBMS applications and anchor a network of Unix workstations. **Page 10**

HP takes direct aim at IBM's mainframes with powerful minicomputers positioned as mainframe alternatives. **Page 12**

Cisco teams with Microsoft on a desktop-to-enterprise communications push, anchored by a PC-based router from Cisco. **Page 14**

Norvell claims to be far along with an object-oriented network services framework that will far outdo Microsoft's Cairo. **Page 14**

Compaq leaves no market segment uncovered with its release of 46 new desktop machines. **Page 16**

Digital will depend on its DEC OSF/1 operating system to carry Alpha APX architecture into the Unix market. **Page 20**

Infonet Services offers pay-as-you-go dial LAN service for low-volume mobile computing users. **Page 24**

DESKTOP COMPUTING

Intel sets up a testing lab to guarantee that systems claiming to be Pentium-compatible really are. **Page 37**

WORKGROUP COMPUTING

SAS Institute rolls out major new release of its software, featuring support for new environments. **Page 51**

ENTERPRISE NETWORKING

IBM reaffirms intent to blend OS/2's DCE services into next version of LAN Server. **Page 65**

LARGE SYSTEMS

Scatterplot automation of data centers does a work. **Page 77**

APPLICATION DEVELOPMENT

Don't count CASE out of client/server and distributed environments. **Page 67**

IN DEPTH

Are foreign programmers undercutting U.S. computer professionals or filling a critical skills gap? It's a raging debate. **Page 122**

CW GUIDE

New client/server accounting systems pose some real concerns, including price, security and the amount of volume they can handle. **Page 107**
Buyers' Satisfaction Scorecard: Of the leading Unix products, Lawson gets the highest marks from its customers. **Page 117**
Pricing Line evaluators give PeopleSoft Financials mixed marks. **Page 118**



CAREERS

SQL-R2: Relational database development will get easier. **Page 128**

MARKETPLACE

The calculation speed of project management packages varies considerably — from seconds to hours — making hands-on testing crucial. **Page 137**

COMPUTER INDUSTRY

EDS reports another slow quarter. Analysis sees outsourcing slump. Company points to treasury, company-specific factors. **Page 145**

COMMENTARY

The last barrier to confide of commercial use of Unix is crumbling with the arrival of system utility suites. says Charles Babcock. **Page 6**

Microsoft is trying to put a good face on the situation, writes Paul Gilbre, but it stumbled on NT and may have thrown part of the market to IBM. **Page 32**

IS has been scrambling to make computing power and communications access free and easy, says Michael Schrage. This is an invitation to waste and abuse. **Page 33**

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Executive Briefing

Distributed computing assists from left field. The wait for tools to ease some aspects of client/server and distributed computing won't be as long as expected, thanks to third-party providers and start-ups.

Revelation Technologies beat Microsoft to the punch, producing an object-oriented Windows repository. **Page 4** Brainstorm Technologies, a small consultancy, leapfrogged Lotus with the announcement that it will deliver a tool next month that gives Visual Basic applications the ability to read and update Notes databases. **Page 4** And two start-up companies, Forte and Dynastay, are promising a whole new breed of object-oriented client/server tools that generate cross-platform code. **Page 28**

CASE rule in client/server. It's probably a mistake to dismiss CASE as an important component of client/server development. Users and analysts say products have improved considerably and help to provide structure and consistency across platforms. **Page 87**

Power to the users... someday. Creating systems that embody business rules in a way that is accessible and understandable by end users will soon be an absolute must because programmers can't keep up with the pace of business changes, says Jim Stikolocher of Kaseh n' Kaury. But there are big obstacles on this road. **Page 37**

Bugs, viruses and hackers got you worried? It just got easier to find out exactly what you're up against. A forum on the Internet has been devoted to collecting information about such risks for some time, and now that group is making its findings available by fax for those who aren't wired into the 'net. **Page 35** In the meantime, cellular carriers are using knowledge-based systems to fight toll thieves, and there's hope these technologies may eventually help secure wireless data transmissions. **Page 71**

Compression breakthroughs: Good news for DOS shops that want OS/2 but don't want to give up the option of using their DOS compression features. See Electronics is planning a Comdex announcement of a utility that permits easy transfer of compressed data between DOS and OS/2. The utility will be bundled with its OS/2 compression program, Stackler. It's amazing what you can fit in a thumbnail of space these days. The new 64M-bit dynamic-RAM chip from IBM and Siemens AG can hold up to 6,400 pages of double-speed text. **Page 37**

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Users cooling to oft-delayed Iceberg

By Johanna Ambrósio

Storage Technology Corp.'s continuing and on delivery dates for its long-awaited Iceberg storage device has resulted in as much as a 10% slippage in demand for the product, which is now expected to ship in quantity "early next year," according to a company manager.

The sixth delay since the product's introduction in February 1992 was quietly announced with the company's third-quarter financial report Oct. 14.

Last week, Chaimury Schwartz, product marketing manager for Iceberg, said 5% to 10% of the initial 150 orders for the product are now hanging on the books.

Based on a study of Iceberg orders conducted about three months ago, the backlog has slipped to 10% for "people who needed [disk storage] before we were available," he said.

One customer who could no longer wait is Howard Strong, senior vice president at Merrill Lynch & Co. in New York. "Our interest was piqued when Iceberg was announced. But we made our bed with other vendors, and we're

happy with the decision," he said.

The vendors include EMC Corp. and its Symmetrix device, a major competitor to Iceberg announced in November 1992 that has shipped 2,500 units. IBM is expected to announce an Iceberg competitor in February, analysts said.

Iceberg is a redundant array of inexpensive disks (RAID) that can store up to 4,000 bytes of compressed data for mainframes. Performance data has not yet been released.

Schwartz would not comment on the reasons for the delays, saying only that the company met its most recent goal of starting internal beta-testing July 25. In August 1992, a company official had attributed the delays to problems with the software that controls the RAID-specific features of the machine.

Executives at the Louisville, Colo., firm are not speaking publicly about the Iceberg schedule or what the problems are, in large part because of a shareholder lawsuit filed against the company in April 1992.

Schwartz said why Iceberg is "working" and that the company is putting the device through "final integration testing." The Oct. 14 statement said customer beta testing will be conducted

ed this fall — meaning by late December — and that the company "expects to begin early customer shipments by year-end." One prebeta version of the machine has been shipped to a customer, Schwartz would not identify.

Too little, too late

By the time Iceberg does ship, some analysts said, it may be too late to capture the market Storage Tek sought.

"The window of opportunity has largely closed for the high-performance market" because of the strides EMC has made with Symmetrix, said Robert Callery, an analyst at International Data Corp. in Framingham, Mass. Still, he said, some large customers that need fault-tolerant disks may find Iceberg attractive.

Schwartz responded that user interest is still high, and he and his marketing team are asked to give three to five customer presentation daily.

One customer willing to give Iceberg a chance is Wayne Pattison, director of data center operations at Kansas City Railway Co. in Kansas City, Mo. "We're very interested in the concept, but it's a lot to work. We'll see what happens when it gets to market," he said.

Application tools on tap for Notes

Firm reads Visual Basic tool

By Michael Vizard
CAMBRIDGE, MASS.

A small consultancy plans to develop a tool that will allow Visual Basic applications to read and write to a Notes database almost a year before Lotus Development Corp. is scheduled to deliver Notes application development tools that support the Basic language.

Brainstorm Technologies, Inc. in Framingham, Mass., plans to deliver VB/NotesLink at the LotusSphere users' conference next month. It will give developers the ability to build Visual Basic applications that can read and update Notes databases. Those same applications will be able to read and update most SQL databases using standard Visual Basic calls.

"The Notes programming environment isn't as powerful in terms of creating user interfaces as the SQL, Tools and Visual Basic run," said Brownell Chaudron, president of Chaudron Consulting Inc. in Oxnard, Calif., and a former member of the Notes group at Lotus.

And industry analysts said large numbers of Notes sites are already struggling with Notes and SQL database integration. "It's an issue a lot of people already have and one that everybody will have over the next two to three years," said Dave Marshak, an industry analyst at the Patricia Seybold Office Computing Group in Boston.

Lotus previously said it intends to support Visual Basic and LotusScript, a derivative of Visual Basic, currently under development, as part of its notebook application development environment. LotusScript will be supported in Notes 4.0, which is due in the second half of next year [CW, Oct. 4].

Deal with Gupta

At the same time, Lotus announced a deal with Gupta Corp. last week under which Gupta's tools will be able to read and update Notes databases in addition to SQL databases [CW, Oct. 25]. However, Gupta will not deliver that capability until the third quarter.

As a result, the Brainstorm offering will be the only tool available in the near term, short of custom programming in C, that will allow developers to create applications that work against both SQL and Notes databases.

Currently, Johnson & Higgins, an insurance brokerage firm in New York, is using C to integrate Notes databases with a database running on an IBM AS/400. Once accomplished, Johnson & Higgins intends to roll up data from the Notes database into the AS/400 database, which will then give the company a central resource from which to write reports for its clients, according to Assistant Vice President Dennis Richter.

Johnson & Higgins will postpone as much of this effort as possible in favor of waiting for the Gupta tools, which it already uses. The company, however, will continue to proceed with its C development work until the Gupta tools arrive.

Marshak added that giving developers the ability to use their existing languages with Notes will be of paramount importance to Lotus as it seeks to increase Notes penetration at customer sites.

Object-oriented tools

Revelation pushes into repository arena

By Michael Vizard

While Microsoft Corp. ponders plans for an object-oriented repository, one of its rivals last week bent it to the punch by unveiling a repository that will support derivatives of the Basic, C and C++ programming languages.

Called OpenNight 2.0, the object-oriented repository from Revelation Technologies, Inc. in Stamford, Conn., is one of the first tools aimed at fostering team-oriented application development in PC environments.

"The idea is to provide a central source where you can change something and have that change implemented everywhere it is used," said Chris LeToeq, an analyst at Compuware Intelligence/Infocorp Inc. in San Jose, Calif.

For example, Natural Gas Clearinghouse in Houston has more than 200 workstations running a DOS application that schedules the movement of natural gas across the U.S. In the next year, the company plans to use OpenNight to migrate all the DOS applications running on those systems to Windows, as opposed to using a custom program it created to share libraries across DOS applications, said Jimmy Scrivens, supervisor of the information systems group charged with building the company's accounting and trading system.

Similarly, Q. D. Syntex Inc. in Berkeley, Calif., will use OpenNight to move a clinical application for doctors' offices from DOS to Windows. "For us, it's a lot cheaper to share a common master die-

tionary for DOS and Windows applications in the same repository," said Vice President Fred Dietrich.

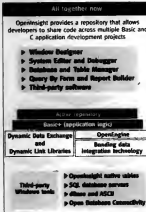
The challenge for Revelation will be to establish its repository before rivals can leverage their stronger positions in the Windows application development arena. For example, Magic Software Enterprises, Inc. in Irvine, Calif., already offers a repository running on high-end servers capable of supporting DOS applications [CW, Sept. 13], and Microsoft executives recently said they are evaluating a move into the repository market [CW, Oct. 18].

Other companies such as Gupta Corp. and Powersoft Corp. are expected to expand their data dictionaries into repositories as part of their Windows-based application development environments. Users can expect similar initiatives from companies such as JVACC, Inc., Unity Corp. and Uniface Corp., said Mitch Kramer, an industry analyst at the Patricia Seybold Office Computing Group in Boston.

But retooling mainframe application development environments for PCs will require more than just repositories, Kramer said. "You have to make sure you need a mechanism for version control," he said.

The PC flavor of repositories aren't as sophisticated as what you would expect to see on mainframes, which are designed to support a vast number of people. The PC repositories are good for individual and small workgroups of developers," LeToeq added.

Pricing for OpenNight is \$249 through December, after which the price is \$495.



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Filling the holes in Unix system

I have been years since Unix was proclaimed ready for prime time, but there's always been a major barrier to its acceptance as a commercial system — the lack of a supporting suite of utilities to make the operating environment more manageable. Finally, however, that barrier is falling.

System utilities were one of the underrated achievements of legacy systems. Anyone who has ever watched IBM's MVS spew out a mind-boggling torrent of messages could understand the value of a utility that noted the exceptions and called them to the system operator's attention. In addition, scheduler utilities ran jobs in the right sequence. Chargeback utilities told the IS manager which departments owed how much for system use. Performance monitors indicated when the system was heavily loaded. Other utilities automated backup or did trend analysis based on system statistics. All these utilities make the environment more predictable and the life of a system manager more livable.

Unix, which was designed more as a developer's system than for running business tasks, lacked many of these features. Hewlett-Packard wanted to advance the use of Unix in commercial organizations but found "business people wanted to know if these utilities were available," says Gina Candelario, HP's Mainframe Alternative Program manager. In too many instances, there were holes, including HP's own HP/UX.

Traditional Unix customers were skilled computer users rather than business people, and they didn't view the absence of a few utilities as a shortcoming. Unix offered system resources to developers in scientific/engineering circles without bogging them down in cross-checking or system safeguard techniques. Consequently, Unix would write over backup data on a tape drive when it needed more storage, or would speed up writing data to disk as space grew short, moving the system along more efficiently toward a crash.

Unix's Cron utility schedules the work load based on time of day and date, with no provision for checking whether requisite jobs have been completed. It is difficult to handle messages from the operating system automatically, so they get handled by a human operator or not at all. It's even difficult to print out part of a report rather than the whole thing. And there's no concept of a common database for system statistics.

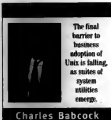
To be sure, a lot of spot utilities have sprung up but they come from different vendors and may work with only one version of Unix. Creating a utility set that both meets a comprehensive set of system management needs and works across Solaris, System V, HP/UX, AIX, OS/2 and The Santa Cruz Operation Unix is a tall order.

Several third-party software houses are now trying to fill the gaps, however, including Racore Software in Rockville, Md., Computer Associates in Indianapolis, N.Y., and OpenVision, a one-year-old start-up in Pleasanton, Calif.

OpenVision, which launched its product line in June, purchased nine utility companies and licensed the products of two others in order to create its own utility lineup. That lineup will ultimately consist of 27 utilities with common database underpinnings through HP's OpenOS/2 as a front end.

Racore converted utilities on Digital VAXs to the Unix market. CA rewrote its existing line of mainframe utilities in C, sometimes combining the features of two similar packages into one product. Those firms are adding common graphical front ends to their utilities, making them easier to learn and use.

With products like these available, commercial system managers may finally have the incentive they need to make the move from their legacy systems to Unix.



Unix compatibility

COSE delivers interim CDE code

By Jenn S. Bozman
SAN JOSE, CALIF.

Corporate developers had better get to work quickly on the Common Desktop Environment (CDE) unveiled at last week's Common Open Software Environment (COSE) conference here because the code distributed on CD-ROMs here is designed to self-destruct in April.

president of IBM's Advanced Workstations and Systems division in Somers, N.Y. "By the second half of next year, we'd certainly expect widespread availability of CDE across the industry."

COSE delivered more than 1,000 free copies of the CDE toolkit on CD-ROM to corporate software developers and independent software vendors here last week. Upgrades optimized

for each vendor's operating system will be available by April.

COSE members said they want to jump-start independent software vendor development of Unix desktop applications and hope a groundswell of applications will allow Unix to better compete with Microsoft Corp.'s Windows NT environment. "The CDE code, together with the Unix Spec 1170 (API), is about 95% of the code that is important to the [independent software vendor]," said Don McGovern, vice president of corporate strategy and business development for Novell's Unix Systems Group.

Help demanded

But many independent software vendors, who were among the 1,200-plus Unix developers in attendance, seemed skeptical that CDE's new look and feel would reduce the amount of required coding. "I don't understand why you can't use the same widgets as OS/2 uses in Motif 2.0," one attendee told a CDE developer's panel. Another pleaded for simplicity in the CDE code. "We want some help with this," he said. "We don't want more choices. This is coming to your desktop soon, and I'd like to get it done without pyrotechnics."

Still, some independent software vendors said CDE would broaden their business prospects. "We want to minimize the work needed to port our software to other platforms," said Lionel Simon, director of product engineering at Renaissance Software, Inc. in Los Altos, Calif. Others said they wished CDE specs had come out earlier. "If I knew something was going to be standard in a year, I wouldn't have thought about developing it," said Larry Hundt, president of Elkton Systems in Boston.



Source: COSE Desktop Working Group

COSE members IBM, Hewlett-Packard Co., SunSoft, Inc., Novell, Inc. and The Santa Cruz Operation plan to upgrade tool kit replacements by then. They said they also hope to integrate the CDE specs into their Unix desktops, which would allow all Unix systems to have a common look and feel (see chart).

CDE code elements include HP's Visual User Environment, the Open Software Foundation's (OSF) Motif 1.2 graphical user interface, a desktop manager from Novell, IBM's Common User Access shell and SunSoft's ToolTalk object-oriented interapplication messaging tool kit. Developers are supposed to write to the CDE application programming interfaces (API), even though COSE members noted the OSF-Motif CDE code is nearly complete.

"We would expect to have CDE in our products by the first half of next year," said Bill Pili,

Out in field

While developers debate the pros and cons of CDE, some large users asserted that they should have been included earlier in the COSE process.

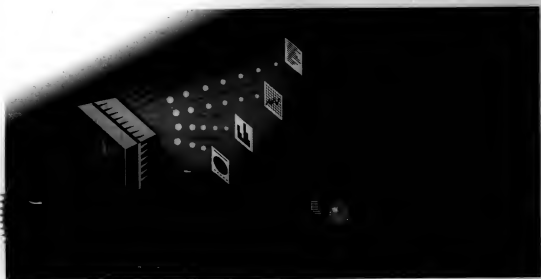
Without early involvement, users must live through pages of specifications before raising questions and providing feedback, said James White, vice president of technical planning at San Francisco brokerage Charles Schwab & Co., Inc. and a COSE conference speaker.

"A lot of the inefficiencies difference [between Unix systems] should go away [with COSE and CDE], which makes our job eas-

er," White said. "But there are some potential 'gotchas' in that users were [involved] relatively late in the process, and the specifications are too detailed." More important to users, he said, is knowing the total cost of installing and maintaining CDE applications.

Novell's Don McGovern said the original game plan was for COSE and the 1,170 common Unix APIs to be announced simultaneously. But Novell underestimated the amount of negotiation it would take to reach agreement on the Unix brand names it granted to X/Open Co. and on the Spec 1170 standard. McGovern said [CDE, Oct. 18]. And CDE was the only product suite that was agreed to when the COSE alliance was announced earlier in the year. —Jenn Bozman

Babcock is Computerworld's a featured editor. His Mac II Mail address is 575-5737



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News Shorts

Strassmann lands at Ernst & Young

Peter Strassmann, the former chief information officer at the Department of Defense and Xerox Corp., last week joined Ernst & Young's Center for Information Technology and Strategy in Boston as a research fellow. He will continue work on his return-on-investment methods for evaluating alternative information technology investments. Ernst & Young will get exclusive implementation rights to the Strassmann methodology, according to an Ernst & Young spokesman.

Bell Atlantic hires Skinner

Bell Atlantic Corp., the Baby Bell that made big headlines when it announced its merger with cable TV giant Tele-Communications, Inc., has hired Larry Skinner, formerly of Texas Instruments, Inc., as its vice president of business processes. The post gives him responsibility for business re-engineering at Bell Atlantic's telephone companies, network services and corporate information systems, according to a spokesman for the Philadelphia-based company.

IBM announces another down quarter

An expected, IBM last week announced a net loss of \$45 million for its third quarter ended Sept. 30 [CW, Oct. 25]. This compares with net earnings of \$90 million, before restructuring charges, for the same period last year. Revenue stayed flat, at \$14.7 billion. Services revenue increased by 26.5%, while software revenue fell by 5%. Hardware revenue fell by just 1%, with PC revenue increasing "significantly" and workstation revenue declining. IBM would not provide more details. Separately, IBM Credit Corp. reported revenue of \$37.7 million, compared with \$55.3 million for the third quarter in 1992, largely because of an increased federal tax rate, the company said.

Canada Post taps SHL for client/server

Canada Post Corp. last week signed off on its massive client/server outsourcing deal with SHL Systems house, Inc. The contract, valued at about \$1 billion, calls for Systems house to replace some 9,000 IBM 3270 terminals with PCs. The parties have not yet committed to a server operating system, so the project is shaping up as a Unix/Microsoft Corp. Windows NT showdown. Canada Post and Systems house also formed a joint venture to market the fruits of their labors to other postal agencies and to commercial enterprises.

Clinton calls for health report cards

President Clinton released his proposed Health Security Act last week, calling for electronic medical billing, standardized insurance claims, data-intensive "report cards" on the quality of care and a law protecting the privacy of medical records. The Clinton plan explicitly states that the Health Security Card will not be a smart card, but rather a magnetic-stripe card carrying only administrative data.

Client/server bundles from Borland

Borland International, Inc. this week will launch a promotional program under which it will bundle its Paradox database with its Interbase SQL database for 90 days through March 31. The program is intended to get IS managers to deploy Paradox on user's desktops as a front-end query tool for accessing the Interbase relational database management system.

SHORT TAKE Microsoft began shipping on schedule last week the beta version of its NetWare Workstation Compatible Service, which allows Microsoft's Windows NT to access Novell, Inc. NetWare servers. A commercial version is due out by year's end.

More news shorts, page 16

Systems management

CA-Unicenter goes cross-platform

By Thomas Hoffman
CHICAGO

Computer Associates International, Inc. has inked its systems management client/server strategy onto a star.

The islands, N.Y., software giant last week announced plans to deliver CA-Unicenter/Star, an IBM OS/2-based client/server package designed to manage multiple heterogeneous environments across a network from a single workstation [CW, Oct. 25].

CA-Unicenter/Star, announced here before 1,500 attendees at CA's Systems Software conference, is slated to enter beta testing in December. A production version should begin shipping by the end of the first quarter next year, said Jay Yesselman, director of CA's systems management strategy.

Although users and analysts hailed the vendor for its ambitious plans to deliver one-stop systems management tools, CA-Unicenter/Star does not come without its caveats.

For a systems shop to manage mixed, distributed environments, such as Hewlett-Packard Co.'s HP-UX, Microsoft Corp.'s Windows NT and IBM's OS/2, from a single workstation, server versions of CA-Unicenter for each of those en-

vironments are required.

Users said their companies would have to evaluate the costs of the necessary "enabling" software before making a decision on the package. "Firing 'a' something we're going to have to look at," said M. Nicholas Lovelace, an



CA-Unicenter/Star provides singular view into networked systems

IS review officer at Connecticut Mutual Life Insurance Co. in Hartford, which is not currently using any version of CA-Unicenter.

"It's difficult to put the price of this [required software] against years of investment in training. The costs are something our financial folks will look at, but I'm sure that we will be able to make a persuasive argument to justify it for our company to remain competitive since it should reduce the time and costs of additional training."

said Ross Markley, a systems engineer at Norwest Technical Services, Inc., the technology arm of Norwest Corp., the Minneapolis-based banking conglomerate.

The OS/2-based CA-Unicenter/Star will be priced at \$905, according to Charles B. Wang, CA's chairman and chief executive. A Windows-based version will go into beta testing in the third quarter next year and will also cost \$905. However, users who wish to co-manage their IBM MVS Group 40 systems will have to plunk down \$15,000 for an MVS server version of CA-Unicenter.

Portioning server ports of the systems management package for OS/2 and Novell, Inc.'s NetWare environments will be priced at \$1,000 per server, according to Yesselman. Pricing for other Unix platforms has not yet been announced. CA's one-stop systems management plans are a full six months ahead of product strategies from competing vendors such as Legent Corp. and Tivoli Systems, Inc., according to analysts. "As far as something that goes cross-platform, there really isn't a lot out there that compares with CA-Unicenter/Star," said Jonathan Enoch, research director at Illumina, a Pittsburgh systems software technology assessment firm.

Security

CONTINUED FROM PAGE 1

will run across all desktops and network types without requiring changes to existing applications.

For example, the federal government-advocated Clipper chip addresses only one level of security: the encryption, or key-based scrambling, of data in transit. Optional encryption would be one component of the Hughes software, which would also bundle in several other security layers beginning with user authentication.

Security in No. 1

The enterprise approach to security is of the greatest concern to companies with mission-critical data and to those migrating from mainframe-based environments where security has been airtight for years, said Katrina Leishach, a senior consultant at Aberdeen Group in Boston, who was briefed by Hughes.

For example, "Security is the No. 1 priority of everyone I know in my business today — the business of client/server Computing and distributed networking," said Bruce

Russell, director of corporate technologies at Amex Life Insurance Co. in San Rafael, Calif., which has been moving to a LAN network from host-based computing over the past couple years.

An outstanding security gap, Russell said, is "protecting everything at one time" rather than requiring multiple log-ons and passwords for access to various environments — what he said is a more vulnerable approach.

Others considered the Hughes effort on the right track, but had reservations about the enormity of the task.

"We have 20 different systems, all with their own security, and it would be very nice to have a single structure handling all the back-end work," said Jim Queen, director of enterprise networking at Enron Gas Services Corp. in Houston. "But I'd be real surprised if someone came up with a unified way to secure all our systems."

New rules

Hughes' first offering, NetLock, will secure Sun Microsystems, Inc. Unix workstations and the TCP/IP networks enabled by the communications functions embedded in the Unix kernel. NetLock will

check data integrity and allow network administrators to set rules as to what systems are authorized to communicate with one another and to optionally implement encryption schemes.

The Sun version is slated to ship on Dec. 1, followed by NetLock for Novell, Inc.'s NetWare environments in the second quarter of next year. Security packages for desktop operating systems will emerge in 1994.

Continuing concerns

Some users and outstanding concerns that Hughes was unavailable to address last week.

"My first take is these products, coming out of a government entity, will carry tremendous overhead," said Michael Higgins, technical support manager at Beyer California, a San Francisco clothier.

Higgins said, for example, that he tested Oracle Corp.'s Oracle Trusted System — which requires the same federally mandated security features as the Hughes initiative — but it was not worth the processing power drain.

"It does work, though. It is absolutely bulletproof, but you could end up using a Cray to protect your PC," Higgins said facetiously.

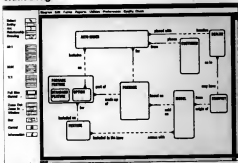
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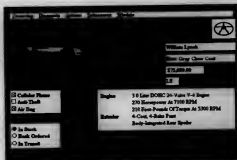
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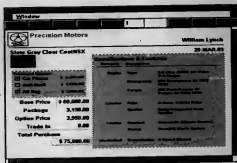
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ORACLE

Cray Research gets commercial SPARC

By Jean R. Boyman
SUNSHORE, CALIF.

Cray Research, Inc. slipped into the commercial market last week with the announcement of a \$400,000 SPARC-compatible supercomputer that can run relational database applications and anchor a network of Unix workstations.

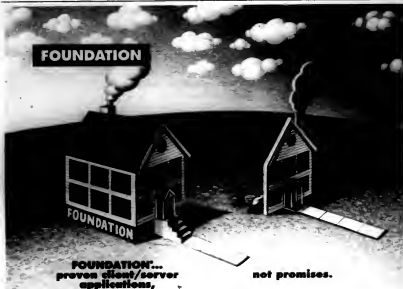
The symmetrical multiprocessor machine, the CS6400, will be sold by a Cray Research unit called Cray Research Supercomputers and Sun Microsystems, Inc.'s SunIntegration Services organization.

Sun Chief Executive Officer Scott McNealy said the 64-way Unix machine would complement Sun's workstations and SPARCserver 1000 and SPARCcenter

2000 machines, which top out at 20 processors. "We think we'll sell a lot more SPARCclassics every time they sell one of these," he said. McNealy was alluding to the pull-through sales of X Windows System terminals and workstations, which will need access to the large amounts of data stored on the multiprocessor machine.

"We're creating a seamless computing environment between Sun and Cray," said Lester Davis, Cray Research's chief operating officer, referring to the binary compatibility of Sun and Cray Research systems.

The CS6400 also has software links to Unix-compatible mainframes and to Cray Research supercomputers, said Martin Buchanan, general manager of Cray Research Supercomputers. Initial target markets will be in the auto, oil, financial, tele-



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MAIN MEMORY	Up to 160 bytes
SYSTEM INTERCONNECT	4 XD-buses
I/O CHANNELS	Up to 16 S-buses
ADDRESS	Up to 27 bytes of on-line disk-drive memory
VOLUME SHARDING	First quarter 1994
PRICE	\$400,000 to \$2,500,000

communications and electronics industries and government, Buchanan said.

Sun partnered with Cray Research because it does not intend to create its own 64-way Unix server, McNealy said. "Our focus has been on 85,000 to 825,000 desktops and the two- to 20-way [symmetrical multiprocessor] machines," he said. "We see lots of upside to our revenues by staying in those price/performance ranges."

No immediate need

At least one Sun user said he does not require the horsepower in the CS6400 — yet. "I still have a lot of headroom in my SPARCserver 1000 and SPARCcenter 2000 machines," said Pompei Malik, manager of information services at Brewers Retail, Inc. in Mississauga, Ontario, which uses high-end Sun servers to run its cross-province retail chain. "I can see how it could be the main computer for accessing corporate-level information, but somehow that seems to go against the entire distributed computing paradigm." He was alluding to Sun's stance against large-scale systems.

However, a centralized Sun-compatible server could be a fast, computer-intensive engine for database applications, said Stan Hanks, president of the Sun Users Group. Users could access centrally stored data through the X terminals.

"The big sick the mainframe guys have used to beat the workstation guys is the lack of data bandwidth [on workstations]," Hanks said. "Now, you've got a computational engine that can be logically partitioned into multiple machines that have virtually instantaneous communications between them."

Industry analysts said they see a narrow market for the machine, although it fits the needs of Wall Street workstation aficionados who do a lot of number-crunching and data analysis.

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Mark Mroz and Dan Hendricks
Consumer Information Management, AT&T

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what it's like to be 300th in line for compilation.

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They began using the Micro Focus Offloading Solutions two years ago and found "everything we could do on the mainframe we could do with Micro Focus COBOL." The PC is so much faster. There are still times when I have to go back to the mainframe, but I really do not like it. I try and steer clear of it, if possible."

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HP to deliver power-packed minis

By Mark Halper

Hewlett-Packard Co. this week will unveil its most powerful minicomputers ever in a price/performance apparent intended to send IBM staggering further into the mainframe ropes.

Users said the move will also invigorate HP's own sluggish mainframe-alternative program. The new version of HP's Corporate Business Systems will incorporate the 90-MHz rendition of the company's PA-RISC microprocessor. It is a step up from the 60-MHz PA-RISC chips that HP uses in the original version of the line, commonly known as Emerald, which was introduced in May 1992.

Extra scalability

In a surprise move, HP will announce that Unix version of the Corporate Business Systems will scale up to eight processors. Earlier indications were that processor support would top out at eight [CW, Oct. 15]. Proprietary models running HP's MPE/IX operating system will scale up to eight processors, HP said. Currently, all Corporate Business Systems run a maximum of four processors.

HP said a six-processor version of a 7100-based Unix box scored 2,110.5 trans./min. under the Transaction Processing Council's benchmark parameters running an Informix Corp. relational database. An eight-processor Unix box running Oracle Corp.'s Oracle 7 will churn 1,500 trans./sec. compared with a previ-

HP is introducing the performance of its Unix and proprietary systems

Model	Processor	Cache	Memory	Price	Availability
HP 9000 (10-12 processors)	1,500 (1-way)	4,500	256M 2,56M 1,000M	\$45,000-\$60,000	Dec. 1993 (up to 12-way)
HP 9000 (10-12 processors)	1,500 (1-way)	4,500	256M 2,56M 1,000M	\$45,000-\$60,000	Dec. 1993 (up to 12-way)
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Hewlett-Packard Co. estimates.

ous HP Unix high of 700 trans./sec., the company estimated.

With the new models, HP is also taking severe pricing action. It set the retail tag for a single 90-MHz processor Unix version of \$145,000, essentially offering the machine for the same price at which it has been selling single-processor 60-MHz boxes. It set pricing for a 12-processor Unix box at \$600,000. Until last summer, when HP implemented price cuts in preparation for this week's announcement, that was also the price of a four-processor machine.

The company said it is phasing out all but the single-processor version of the 60-MHz line, and it is cutting the price of that box to \$120,000. Pricing for MPE/IX versions ranges from

Speed demon

While the 7100 chip runs at a raw speed of 96 MHz, Hewlett-Packard slows it to 90 MHz to conform to the 32-MHz increments of the Corporate Business System's backbone. HP takes the same approach for lower-end boxes.

\$210,000 to \$678,500. The 60-MHz MPE machines cost from \$250,500 to \$449,500.

Users said the addition of the faster chip should help HP revitalize Corporate Business Systems sales. High-end sales had slowed, they noted, because HP had built the 7100 chip into lower-end models, such as its HP 9000 Series 800 G, R and I machines, which offered impressive performance for less money [CW, June 28].

It is for horsepower

"A lot of customers buying the H class systems because they put out an incredible amount of horsepower," noted Sam Ellis, associate vice president of information services at Portland Community College in Portland, Ore. "People have been either buying the H or waiting for the 7100 Emeralds."

"The T has a slower backbone than the Emerald. It can't handle as many users, but it did have a faster processor. So for less money, you were able to get more processor speed," agreed John Jawziewic, chief information officer at Barber Colman, Inc., a Rockford, Ill., vendor of controls for environmental and industrial equipment. "As you get into large relational database environments, chances are you might be better off trading I/O speed and capacity for higher CPU performance."

Both Ellis and Jawziewic plan to eventually upgrade their 90-MHz Corporate Business Systems to 7100-based boxes.

Jawziewic said it will cost him about \$60,000 for each of the three processors he plans to upgrade and that he expects the transition to take about a half-hour. By comparison, upgrading an IBM 3090 mainframe "would take an entire weekend and cost about \$2 million."

Patent office

CONTINUED FROM PAGE 1

too flowing to users.

The patent office's text search system would allow it to evaluate alternate means of delivering information to patent examiners, who by law must exhaustively review the literature before passing on the patentability of an invention.

"The existing system is rigidly Boolean — standard Nexis/Lexis sort of stuff," said Rob Porter, director for systems development and maintenance. "That puts us in a position of absolutely flooding the search examiner with all kinds of information that are irrelevant."

The patent office database, which now holds records of all patents issued since 1971, could grow in a few years to 80 bytes, depending on how much information is made available for high-speed searching.

"In five to 10 years, we'll have two to four times more information to show examiners [in each search]," said Thomas Giammo, assistant commissioner for information systems at the patent office. "If we don't find ways of filtering information and sorting it so the most likely hits get them first, our success in bringing examiners more information will be their downfall."

No available commercial products meet the patent office's filtering needs, according to Giammo, though some are "within striking distance."

Possible users outside the patent office include the Central Intelligence Agency, which has approached the office for information about the project; agencies with large text re-

positories such as the Nuclear Regulatory Commission (NRC) and the Library of Congress; and commercial enterprises such as law firms, Giammo said.

For example, the NRC is looking for a text search system to help it fulfill its legal charter to support license applicants and litigants' requests for information out of vast databases of regulatory documents, environmental studies and the like.

"We are the archetype of a certain class of customer," Giammo said. "We're one of the few willing to pay the

outrageous price for massive text search, but where you do see these systems in use, the payoff is incredibly high. I believe... that once you bring down the cost, you will open up many new markets. I don't think the idea of having 600 customers is at all unlikely."

Information explosion

The patent office's existing text search system runs on an Amdek Corp. 5590 mainframe and can support 100 concurrent users. The company hopes the need to support 750 concurrent users by 1995 as the patent office expands access to 10 to 75 public libraries, further requirement could skyrocket if public access were provided via the Internet, as the Securities and Exchange Commission recently decided to do with its corporate filings.

Minimal benefits

Giammo said he is looking for a vendor with established technology whose implementation the patent office would partially fund in exchange for a long-term license. He said the vendor would have to prove the system would be scalable — as the office cannot predict its user demand — and that the resulting product would be "commercially viable."

The winning vendor would be responsible for marketing the system and could use the patent office as a beta site and reference account, he said. Giammo declined to reveal either the

office's budget for the project or an estimated cost to develop the system.

He said the patent office might simply accept the Oracle proposal without soliciting bids from others, but doing so would require it to show that the Oracle approach is "unique." In any case, he said he may encounter opposition from federal procurement officials, who balk at the concept of buying a commercial, off-the-shelf product that is not yet even on the shelf. Consequently, he is seeking support for the idea from senior officials at the U.S. Department of Commerce and the White House Office of Management and Budget.

"There's absolutely nothing improper about this, but I'm afraid its swiftness may cause problems," he said.

A Commerce Department official said while he is enthusiastic about the project's concept, he stops short of endorsing it because he has not seen details.

None of the vendors involved would say much about what steps they might take in meeting the patent office's needs.

However, Lori Mirek, director of server product marketing at Oracle, pointed out that the company just announced its Parallel Query Option, by which an Oracle database can run on shared-economy multiprocessor workstations, minicomputer clusters and massively parallel computers such as from NCube.

Carlton Samuels, support operations manager at Software AG, questioned the need for a massively parallel system with hundreds or thousands of processors. He said the company's Adabas database management system running on IBM mainframes handles 100 million transactions a day for an airline and supports a text database for the Federal Bureau of Investigation that is "in the hundreds of gigabytes."



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Internetworking

Cisco routers to assist Windows NT

By Joanie M. Wesler

In its efforts to groom its Windows NT Advanced Server as an enterprise desktop server, Microsoft last week said it will deliver internetworking functions to the operating environment via the first PC-based router developed by Cisco Systems, Inc.

The two companies said they have teamed on a desktop-to-enterprise communications effort in which low-end routers from Cisco for PCs will link branch offices into corporate internetworks. The routers are due in the first half of next year. The move represents Microsoft's answer to Novell, Inc.'s home-developed MultiProtocol Router, a NetWare Loadable Module that runs on NetWare servers, for providing low-cost connectivity needs.

From one user's perspective, "one of our primary considerations is the availability of low-cost Internet connectivity options," said Bill Bard, director of the office of telecommunications at the University of Texas in Austin. This is because the university provides networking services to many schools and state agencies, because of its large site count, the university requires inexpensive connections, he said.

Cross training

Aside from the technology ramifications, "product will be delivered through one channel, and both companies are investing in cross training," said Don Listwin, Cisco's vice president of marketing. For added fact the two firms are looking to integrate their network management systems.

Integrating CiscoWorks, which manages Cisco routers, and Hermes, Microsoft's code-named desktop manager due in the first half of 1994, could appeal to branch offices that might want a view of their local domain only. Listwin said.

Both CiscoWorks and Hermes are also slated to tie in to the high-level, Unix-based enterprise management systems where they will become part of a larger management picture for networking staff responsible for both the network backbone and periphery, he said.

No resting on laurels for Novell

Novell does not intend to just sit on its hands while Microsoft makes the next-year trip to Cairo, according to Bob Young, Novell's vice president of marketing. "When Cairo ships, we'll again be two to three years ahead of them, as we are now," he said.

For the past few years, Novell has been busily working on the components of an object-oriented network services framework that will deliver everything that Microsoft promises and more, Young claimed.

One such piece is NetWare Directory Services, which is 90% to 95% object-based now, Young said.

Another important piece is an Object Request Broker, to be delivered next year, which will automatically match application and user requests to the right service, without the user's having to worry about where it is located, Young said.

The broker, which Novell is developing with its partner Hyperlink Corp., will be fully compliant with the OMG's Corba, he added. Novell said it intends to keep adding service objects that the broker can access,

again cleaving to OMG object definitions, Young said. So far, Microsoft has held aloof from OMG, claiming that the standards group's broker and object definitions are too rudimentary.

More NetWare services

While Microsoft may offer a rich set of desktop objects to be accessed through its object manager, Windows NT offers a minuscule range of network services compared with NetWare, Young said. "I would argue that until Microsoft delivers a complete network operating system," Cairo's object manager will have little value.

Rather than attack Novell's 70% share of the market directly, Microsoft will attempt to get a foot in the door of NetWare installations by offering its NT and Windows clients access to the dominant network operating system, said Claude King, senior systems analyst at the University of Florida.

However, Cairo will not be able to just walk into Novell installations with Cairo, King said.

—Elizabeth Horvitt

Microsoft casts object net

CONTINUED FROM PAGE 1

updated or relocated, King said. "That's what I call an executive information system."

Cairo will also extend the dynamic application links provided by Microsoft's Object Linking and Embedding (OLE) 2.0 across the enterprise, said Greg Landell, group product manager for Windows NT at Microsoft. This will move users from an "application-centric view where you click on a spreadsheet, start it up and then open a file" to an object-oriented framework where "the user can focus on the information and not have to understand whether it's a spreadsheet or general ledger."

User, software vendor and analyst sources briefed by Microsoft said they like what they have heard of Cairo's enterprise-wide resource-access abilities so far, although it is early yet to tell whether the architecture will be all it is cracked up to be.

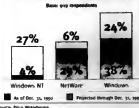
Bang must be bigger

ShowTime Network, Inc., for example, is not likely to replace its current NetWare services with Cairo unless Microsoft's platform turns out to offer a whole lot more functionality, said Peter Pollack, director of technology at the Viscom, Inc. subsidiary. ShowTime currently uses Unix, and some NT, for application servers.

On the other hand, Cairo is a likely choice for companies such as Nordstrom, Inc., which is in the process of rolling out its enterprise network environment on Windows NT Advanced Server, according to Larry Shaw, PC coordinator at the Seattle-based de-

Drawing the battle lines

A growing number of independent software vendors are writing systems for NT, Cairo's launch pad.



partiment store chain.

Among the reasons for Nordstrom's choice: "NT's manageability and scalability and the fact it runs as a full 32-bit protected mode," Shaw said. An application running in unprotected mode in NetWare can bring down the whole server if it accesses the wrong area of memory, he added.

To extend Cairo support beyond its own desktop systems, Microsoft plans to base the platform's connectivity plumbing on the Open Software Foundation's Distributed Computing Environment remote procedure calls. Microsoft is working with vendor partners on a "very pragmatic solution that follows some emerging standards" and will make some preliminary introductions in the next couple of months, Landell said.

Various ports planned

Microsoft will also make Cairo-based services available to other vendors' platforms by porting OLE, which Cairo is based on, to non-Microsoft desktop systems such as the Macintosh, Griffin said. Microsoft will port OLE to other systems as well, based on user demand, Landell said.

Windows icons will shield users from the dirty work involved in finding a particular application or record on a system, as well as housekeeping chores such as moving or deleting a user on systems and files across the enterprise.

"You should be able to go to a graphical presentation of the sys-

tem, grab an image of the user and throw it in the trash or move it," as opposed to deleting or moving all user entries manually, according to Landell.

Microsoft's "Cairo commands," which will invade user and independent software vendor (ISV) turf, will be the company's own popular applications, which Microsoft is quietly fitting with Cairo-compatible objects, said John Donovan, a director at WorkGroup Technologies, Inc., a research firm in Hampton, N.H.

Microsoft's ever-popular Windows environment will be another Cairo command, particularly in its next-generation, or Chicago, iteration, Griffin said. Chicago and NT will have "much the same user interface and APIs," and Chicago will have OLE 2.0 support, he added.

ISVs with migration jitters should be soothed by the fact that applications that support Win32 and OLE 2.0 are "80% of the way" to the new platform, according to Landell.

Microsoft has been pushing hard to gain OLE 2.0 commitments from virtually all major software vendors, Griffin said.

Microsoft's openness stance remains less than sincere, however, as long as the company goes on insisting that its own object definitions, and not those of an industry standards body such as the Object Management Group (OMG), be used, said George Reid, director of information systems at Sanford C. Bernstein & Co., a New York financial services firm.

If Microsoft's "stone walls" on the OMG's Common Object Request Broker Architecture (Corba), it will isolate its users from the distributed networking standard, which is blessed by most of the big Unix systems players as well as by Novell, Reid added.

Standards bodies such as the OMG have yet to deliver a "practical implementation" of a standard that will "satisfy users" [distributed] in heterogeneous environments," Landell said.

For example, Corba has yet to provide security features or network transport independence, he said. In contrast, "We have object definition handling in OLE today," he added. "Realistically, if you have 40 million desktops using OLE and the Microsoft object model, the momentum will be fairly compelling."

E-mail conference highlights IS challenges

By Lynda Radosevich

If information systems managers think that life is complicated now, wait until speakers at the E-Mail World conference this week in Santa Clara, Calif., outline how imminent national and international "superhighways" will lead to a vastly more complex world.



"It will be as disruptive as going from mainframes to LANs," said David Parber, a conference speaker and a board member of the Electronic Frontier Foundation, a Washington-based group that lobbies on computer-related issues.

That is because the merger of communications and computing, which has been slimmer for 20 years, will swing into high gear once these data superhighways take off, requiring IS managers to rethink the way they build computing systems.

By comparison, the move from mainframes to LANs was a switch from one computing platform to another, said Parber, who is also a member of the computer science faculty at the University of Pennsylvania.

Among the challenges facing IS are rethinking the meaning of security and building new software systems that can shoot message-based information around the world in real time with 100% reliability.

Current solutions

While superhighway commercial availability is still four to five years away, vendors at the conference plan to roll out products to tackle more immediate problems, such as interoperability and enterprise-wide directory synchronization. This week's announcements will include the following:

• **Banyan Systems, Inc.** in Westboro, Mass., will announce an intelligent messaging interface for Unix that allows organizations with mixed Unix and PC networks to communicate via integrated messaging systems. It is available now as an option for Banyan's Vines for Unix server software for Vines for The Santa Cruz Operation's Unix; the same option will be available for Hewlett-Packard Co.'s HPVUX, IBM's AIX and Sun Microsystems, Inc.'s Solaris in the first half of 1994.

• **Novell, Inc.** in Provo, Utah, will add Message Handling Service (MHS) criteria to its XBS testing and certification

program. Vendors' messaging products that meet the criteria will be ensured to interoperate with one another, according to John Rizzit, president of the MHS Alliance. The specification is expected by the first quarter of 1994. Also, the alliance will release the first draft of a customer/group scheduling specification announced in June. Additionally, Novell

is expected to unveil new MHS gateways for Lotus Development Corp.'s CC-Mail and Microsoft Corp.'s Mail.

• **RadioMail Corp.** in San Mateo, Calif., will announce a new service that allows users of Apple Computer, Inc.'s Newton personal digital assistant to receive messages from any electronic-mail system through a central RadioMail gateway.

The Newton must have Motorola, Inc.'s Newton Messaging Card, a wireless PCMCIA adapter.

• **Allina Systems, Inc.** in Pasadena, Calif., will announce an enterprise E-mail directory called OpenDirectory. Based on a Sybase, Inc. SQL database, the directory allows users of Microsoft's Open Database Connectivity client software to browse through it. The directory works with Allina's message routing and directory synchronization software.

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Microsoft delivers DOS 6.2

Microsoft Corp. formally announced delivery of MS-DOS 6.2 last week, pricing the Stop Up version of the upgrade for DOS 6.0 users at only \$9.95. For all other DOS users, the upgrade is priced at \$77.95, although the company expects the street price to be around \$50. Besides the expected improvements made to the program's DoubleSpace compression program and SmartDrive caching feature, Version 6.2 also sports CD-ROM caching for faster performance. The program should be available this week.

WordPerfect teams with MCI for E-mail

WordPerfect Corp. and MCI Communications Corp. announced last week that WordPerfect Office 4.0 will be incorporated into the MCI Mail network. The move will allow Office users to exchange messages with MCI Mail users and users of 54 public electronic-mail services in 40 countries connected with MCI, according to WordPerfect. The service will be available in the second quarter of 1994. MCI has a similar arrangement with Lotus Development Corp.'s CC-Mail.

Digital readying first ATM products

Digital Equipment Corp. said last week it will start shipping Asynchronous Transfer Mode (ATM) networking products in the first quarter of 1994. The initial rollout will include a backbone ATM switch with a throughput capacity of 100 Gbit/sec, a 150M byte/sec ATM adapter for DEC 3000 workstations, and a module for its Gigawiret FDDI-to-FDDI matrix switch that will let it act as a gateway between Fiber Distributed Data Interface (FDDI) and ATM networks. Pricing has not been finalized, the company said.

IBM cuts PC prices

The IBM PC Co., preparing for significant product announcements in its PS/2 line, cut prices up to 20% on its PS/2 Model 90 and PS/2 E, and by more than 50% on its 686SLC2 processor upgrade for its Models 56 and 57. The base price for the Model 90 with a 25/50-MHz DX2, 5M bytes of RAM and a 540M-byte hard drive went down from \$4,765 to \$4,130.

SHORT TAKES Lotus Development Corp. last week moved to make it easier to master Notes. The company will offer 10companion training modules with Lotus CBT Systems in San Francisco. ... Kendall Square Research Corp. last week said it expects to report a loss for its third financial quarter, where analysts had expected a gain. Word of the expected loss comes on the eve of this week's expected announcement of the KSIR-2, a high-end massively parallel machine that doubles the power of its current model. ... Unisys Corp. has completed its purchase of ComputerVision Corp.'s System 9 Geographic Information System technology; the purchase price and terms were not disclosed. ... WordPerfect has formed a small-to-medium-size-business group that will focus on customizing CBT Systems in San Francisco. ... Toshiba America Information Systems, Inc. will today begin offering a three-year warranty for parts and labor on its flagship T1600 notebooks, the T6000 portable, the Dynapad T1600 pen-based system and all Desk Station docking stations. Current users of these products can buy the three-year warranty for \$149.95 for color products, \$99.95 for the rest. ... Imomga Corp. announced that Fred Weisinger, president and chief executive officer, has decided to leave the storage company. Senior Vice President Leon Stachowiak will be interim CEO until a permanent replacement is found. ... An unexpected, chip maker National Semiconductor Corp. last week unveiled phase one of a network adapter card rollout in partnership with Novell, Inc.

News

Compaq boxes focus on ease of use

Desktops add sound, packaging upgrades

By Stephen P. Klett Jr.
BOSTON

Compaq Computer Corp. is set to unleash today a desktop blitzkrieg of 40 machines emphasizing easy-to-use features from the graphical user interface (GUI) to the packaging.

The new machines mark Compaq's attempt to blanket every segment of the market from major corporations to small business users to first-time home buyers, company officials said.

"This is the most significant product launch for the company since the breakout of the reborn Compaq in June of '92," said Richard Zweichenbaum, senior PC analyst at International Data Corp. in Framingham, Mass.

All of the machines will ship with TabWorks, a Windows shell developed by Xerox Corp.'s XSoft division that is said to make the system more intuitive (CW, Oct. 25).

On the desktop

Speakeading the desktop assault is the DeskPro XE series, a line of high-performance XT/AT bas, Pentium-based PCs. Pricing for the DeskPro XE, which features voice annotation and response capabilities, will start at \$2,600.

In addition, the XE line incorporates the TriPro/PC architecture of the high-speed DeskPro/PC series to boost I/O performance. The XE series will replace Compaq's DeskPro line, which gradually will be

phased out of production by the end of the year, according to the Houston company.

Welcome upgrade

"The DeskPro was very long in the tooth and needed upgrading," said Randal Giusta, an analyst at Worktronic Technologies, Inc., a consultancy in Hampton, N.J. Blount Construction in Montgomery, Ala., will take a close look at the Pentium version of the XE,

expandability. Both lines offer a range of processor choices that span Intel Corp.'s 486SX and DX2 offerings.

Compaq will also introduce a ProLine model that borrows Presario's "all-in-one" packaging. Called the ProLine Net 1/286, it features an integrated monitor and either an Ethernet or a Token Ring network adapter card built onto the system board.

While users said they were im-

A clean desktop

Model	Features	Price
DeskPro XE	Refined Compaq graphics, business audio capabilities	\$2,600 for 486SX Pentium model
ProLine Net 1/286	Integrated monitor and network card	\$1,995 for 486SX model with 64MB/333 CPU
ProLine XT	Refined, Pro Industry Standard Architecture base drive and expansion slots, Compaq-upgradeable	\$1,995 for model with 486SX/333 CPU, 64MB/333 for notebook version

All models are desktop systems. *Price excludes monitor.

according to Scott Lee, PC support manager at the company. "Right now our 486 machines are meeting our needs, but we may need a performance boost in the next months. ... and the XE's \$2,600 entry price for Pentium sounds pretty good," Lee said.

In addition to the XE, Compaq will also unveil new and updated versions of its ProLine and consumer Presario lines. Both lines are now available in five-slot, floppy mini-tower configurations. Previously, the ProLine offered up to three slots and drive bays for

pressed with the scope of Compaq's offerings, none were skeptical of the firm's ability to deliver the products, particularly the Pentium XE.

Compaq said it is ramping up production to 100% of capacity in the fourth quarter and will have no trouble meeting demand. "The Pentium is in good supply," said Bob Buser, director of North American desktop marketing at Compaq. "We have a backlog situation on 66-MHz chips but have a more than ample supply of the 60-MHz chips."

IBM gives OK

CONTINUED FROM PAGE 1

general Windows NT will be on the desktop, they said they realize NT's importance to the overall success of the chip [CW, Aug. 16].

"There is no exclusivity here," says IBM Corp. spokesman. "We support a number of 386-bit operating systems. But if people think we're quick to go to NT, they don't understand how strategic AIX and Windows Place OS are to us," an IBM spokesman said.

While Personal Software Products recently secured several volume deals with large corporate accounts for OS/2 2.1 on the Intel platform, some analysts said that is not enough to per-

suaide IBM's hardware units to completely rule out Windows NT from playing a strategic role on the PowerPC, given Windows NT sales projections for the next year.

"It looks like demand is going to be elsewhere, and IBM is sensibly allocating its resources [toward NT]," said Dean McCarron, an analyst at Micro Design Resources in Scottsdale, Ariz.

Strategic OS

In addition to support for Windows NT, IBM will reinforce support for a range of 32-bit operating systems it believes are strategic.

Including its own AIX and WorkPlace OS.

Meeting goals

As of late last month, Microsoft said it had shipped 200,000 copies of Windows NT. Company officials said they believe this puts them on target to meet their goal of 1 million NT sales by next August.

"I would not say we are ready to jump up and down about being way ahead of plan, but we are exactly where we thought we would

be (for shipments)," a Microsoft spokeswoman said. "And we are pleased with where they are going."

The majority of those 200,000 copies have gone to corporate accounts that use the system to develop mission-critical and client/server applications, she said. This is exactly the market toward which WorkPlace OS for the PowerPC and Intel platforms is headed.

IBM had initially planned to deliver WorkPlace OS for the Intel platform, followed by a version for the PowerPC. But fearing that Windows NT would gain rapid acceptance on the PowerPC platform, Personal Software Products this summer slipped its priorities to deliver the operating system for the PowerPC first, sources said.

"That decision was driven by what [IBM] sees as sizable demand for something more advanced to run on the PowerPC," one developer said.

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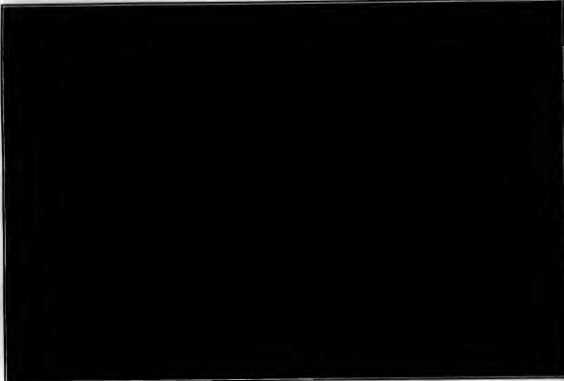
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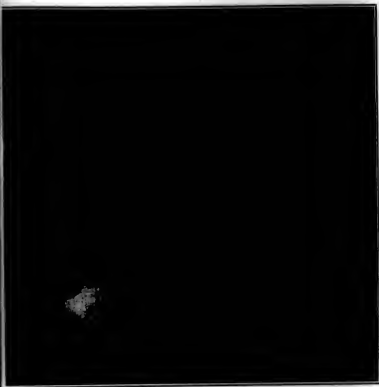


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DEC pushes OSF/1 as NT simmers

By Craig Stedman
NATURAL, MASS.

Forecasting a two-year ramp-up for Microsoft Corp.'s Windows NT, Digital Equipment Corp. is relying on short-term growth of its DEC OSF/1 operating system despite the company's current ranking as a Unix also-ran.

NT might be more critical for driving Alpha AXP shipments in the long run because of its desktop potential. But even Dennis Schneider, director of NT marketing at Digital, agreed that this "is clearly the year to make OSF/1 a significant player in the Unix market."

Observers said competitive pressure, particularly from Hewlett-Packard Co.,

is also helping to cement Digital's need for an increased Unix presence. However, users interviewed recently expressed reluctance about eating their lot with DEC OSF/1, saying it remains too shapeless to latch on to right now.

"It's more an operating system of the future," said Matt Holdrege, senior network specialist at PacificCare Health Sys-

tems, Inc. in Cypress, Calif.

"The salespeople talk about OSF/1, but they're hampered by the lack of real packaged solutions," added Tim Bird, director of information services at Paxon, Inc. in Muncie, Ind. "They can only sell OSF/1 right now to people who really know what they're doing."

Rick Webster, a senior systems analyst at Caterpillar, Inc. in Peoria, Ill., said he "would like to see OSF/1 fly." However, he added that Caterpillar uses both HP's and IBM's Unix systems and has no definite DEC OSF/1 purchase plans.

Digital acknowledges that its Unix track record makes users nervous. As a result, the debut of DEC OSF/1 2.0 got top billing Oct. 12 when the company unveiled a wide range of products.

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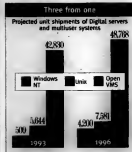
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"They've been talking about OpenVMS and NT, too, but what they've pushed us aggressively on is OSF/1," noted Dennis Voss, chairman of software vendor Ross Systems, Inc. in Redwood City, Calif. "I think they realized that HP was eating their lunch," he explained.

Ross has been one of the leading suppliers of applications for Digital's VAX/VMS computers. However, Voss said "almost all" of its major sales in the last six months "have the words 'HP 9000' in front of them," a reference to HP's commercial Unix systems line.

When it comes to Unix, Digital essentially has nowhere to go but up. Edward Lucette, vice president of worldwide sales and marketing, conceded that even with Alpha, the company is "just barely holding [its] own" in the workstation market after losing significant ground in the last few years.

Digital did not rank among the Top 10 vendors of commercial Unix systems priced from \$10,000 to \$1 million in 1992, according to International Data Corp. (IDC). The company came in 12th worldwide on IDC's list, with just a 2.6% share of a \$7.26 billion market, which amounted to less than \$200 million in sales.

DEC OSF/1 sales have been slowed since its March introduction by a small applications count and the lack of multi-processing and layered software are oriented to commercial environments. Digital hopes DEC OSF/1 2.0 will attract more interest when it ships in January with new layered software and support for running recompiled Unix System V Release 4 applications.



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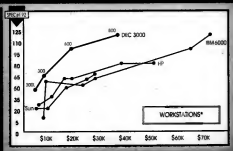
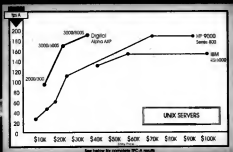
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Remote workers get pay-per-view LAN access

By Joanie M. Wexler

Another data communications option for workers at large emerged last week when Infonet Services Corp. initiated a pay-as-you-go dial LAN service.

The El Segundo, Calif.-based worldwide network services provider added a usage-sensitive cousin to its existing

InfoLAN service, which provides TCP/IP LAN interworking services for large-volume applications at a fixed price.

This latest offering, Switched Access Services, is targeted at telecommuters, business travelers and other low-volume users looking to leverage their companies' existing TCP/IP LAN infrastructures with a minimal investment, said

Larry Morgan, Infonet's vice president of product marketing [CW Oct. 11].

His firm's offering comes amid a rash of remote-access product rollouts that also accommodate staffers wishing to dial into LAN internetworks. The key differentiator between these alternatives — from the likes of Shiva Corp., IBM and Centrium Communications, Inc. — is that

Infonet provides end-to-end management and security, the carrier said.

Infonet found "customers do not want the Excedrin headaches associated with provisioning, maintaining and securing their own dial networks," said Doug Laurin, Infonet product manager.

Infonet said the service is available in more than 20 countries via a local or 800-number call and that eight global production centers are now on the network. Software maker Sybase, Inc. has signed on with the goal of "making access to the Sybase global network only as far away as the closest wall jack," said Don Proctor, a Sybase senior technical staffer.

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LAN to go

The demand for public dial-in LAN services will be fueled by at-home workers, travelers and occasionally communicating partners



Source: The Venture Group, Boston

Customer Sun Microsystems, Inc. said it wants to give selected third parties access to some Sun data while isolating them from other access privileges.

Infonet is providing multilevel security to set up this scenario for Sun and other customers. Its security scheme includes user access codes, passwords and network segmentation.

Public alternatives to the Infonet dial-up offering today largely include gateway services in and out of users' IP networks to carriers' X.25 or frame-relay networks, said Caroline Michel, a senior analyst at International Data Corp. (IDC) in Framingham, Mass.

More than 75% of corporate America today has "hundreds to thousands of employees traveling at least one day a week," said Mark Winther, vice president of telecommunications at New York researcher Link Resources, an IDC company. "Dial IP services are a key way to keep them in touch."

Infonet service pricing ranges from 28 cents to \$1.85 per minute, Laurin said. Users must run computer software containing the Point-to-Point Protocol for industry-standard IP wide-area network connections. Infonet will install a dial-up router at each participating site, make the appropriate bookups and manage the end-to-end link.

Initial access speeds are 9.6K and 14.4K bit/sec. Users acknowledged that compensatory skimming WAN bandwidth permits as a general drawback for users accustomed to much faster LAN speeds, but to a remote user, lower network response times "beats driving an hour into the office to get an application to run faster locally," said David C. Berg, Sun vice president of information resources.

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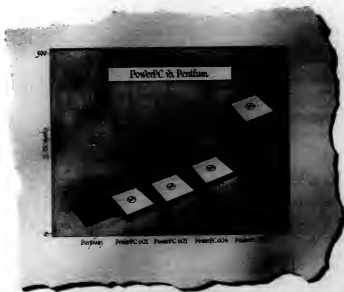
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PeopleSoft adds work-flow support

By Kim S. Nash and Craig Stedman
BURLINGAME, CALIF.

PeopleSoft, Inc. last week promised to add work-flow support to its client/server accounting packages, playing catch-up to Dux and Bradstreet Software, which has tested built-in work-flow functions as a differentiator in the financial software market.

PeopleTools 3.0, released last week, is an application development tool kit that sports rudimentary work-flow features, such as one-way electronic mail and image support. The tool kit lets users modify and add work-flow capabilities,

der processing, according to Tom Kucharczyk, president of Summit Strategies, Inc., a client/server consultancy in Boston.

For example, at drug and health care firms such as Merck & Co. and Eli Lilly, work-flow technology is "a de facto requirement," Kucharczyk said.

The Federal Drug Administration's complex laws mean pharmaceutical workers must document every step in filing for patents, distribution rights and the like. Workgroup systems offer productivity enhancements and an electronic trail that make the technology "ideal for finance, inventory and other intricate processes," he said.

More on the way

The next version of PeopleTools, due out in the third quarter next year, is expected to sport full-blown work-flow functions, including two-way E-mail and links to Notes and Reach's Mailman work-group offerings. That means D&B Software, which had pointed to its built-in work-flow features as unique, must find another way to capture user attention.

Furthermore, D&B Software's Financial Stream line of client/server accounting applications has been slow in coming. The company, which first talked about the products in 1991, released Financial Stream in early October, about a week after a promised September

delivery [CW, July 26].

None of the new sites is in production yet with D&B Software's Financial Stream, a spokesman said.

While D&B Software's delays may deter potential customers, existing mainframe D&B Software sites will probably hang on. Baxter International, Inc. has tested D&B Software's

Product releases

Twenty-five customers have licensed

PeopleSoft Financials, while D&B's Financial Stream is installed at a dozen sites.

D&B plans to add support for Sun Solaris this month. It currently supports HP/UX, OS/2 and IBM's OS/2.

In the "controlled release" category is a general ledger package from The Dodge Group, Inc., led by former McCormack & Dodge Chairman Frank Dodge. After two years of talking about the line, Dodge said he expects volume shipments to start in February. Engineering delays pushed Dodge's OpenSeries line about six months behind the original ship schedule, Dodge said. "The software is still kind of immature," he said. "It doesn't have every bug and whetstone that it will ultimately have in February."

SmartStream decision-support product for almost two years but has yet to put it into production. Other projects are more pressing, according to Bill Reither, vice president of central systems.

"It being a long-term DMB user, it's just a matter of time for us to adopt it," Reither said.

Evaluators in use. PeopleSoft Financials' functionality but found the client/server technology difficult to install. See story page 116.

Portable People

PeopleSoft, which already supports databases from Sybase, Inc. and Oracle Corp., plans to add Informix Software, Inc. to the list "within the next several weeks," said Paul Salzgruber, vice president of partnership programs at PeopleSoft. However, support for The AIS Group, Inc.'s Ingres database "isn't as far along," acknowledged chief executive officer Dave Duffield. Although it is targeted for next year, an Ingres port is not as pressing, he said. "Ingres isn't growing too quickly, but there's a tremendous installed base."

Ingres users looking to jump to other databases might do well to buy PeopleSoft applications, he suggested, because they are portable to other systems. In contrast, D&B's Financial Stream line runs on only Sybase's SQL Server.

IBM's DB2/2 and DB/4000 and Microsoft Corp.'s SQL Server for NT are also on PeopleSoft's 1994 to-do list, Salzgruber said.

—Kim S. Nash

RANDOM			
Originally scheduled for an early 1993 release, D&B Software's Financial Stream financial applications are now in line with PeopleSoft's release timetable.			
Product	Release	Price	
D&B BRADSTREET SOFTWARE'S FINANCIAL STREAM			
SmartStream decision support	May 1993	Starts at \$100,000	
Accounts payable General ledger Fixed assets	Oct. 1993	Starts at \$225,000	
Accounts receivable	Dec. 1993		
PEOPLESOFT'S PEOPLESOFT FINANCIALS			
Accounts payable Accounts receivable General ledger	Sept. 1993	Average license fee for 100 modules: \$305,000	
Asset management	Dec. 1993		

ties to PeopleSoft Financials and other applications.

PeopleSoft is also talking with Lotus Development Corp., Reach Software Corp. and other vendors about building links to their groupware systems, but no deals have been signed.

"Work flow will be critical" in line-of-business applications, such as accounting and ven-

Client/server

Start-ups bring heavyweight tools

By Melinda Carol Ballou

A new breed of object-oriented client/server tools is on the way that reportedly will speed the development process by improving performance and generating cross-platform code.

Built by Dynasty Technologies, Inc. in Naperville, Ill., and Forte Software, Inc. in Oakland, Calif., these tools are said to let developers to slice up their applications to run on the most appropriate clients and/or servers.

"These new tools use object technology without the complexity of object-oriented programming languages to let developers create graphical clients with multiple back ends," said Peter Kastner, a vice president at Aberdeen Group, a consulting firm in Boston. "And business objects will allow businesses to create units, such as a purchasing function, and then snap together applications from templates."

While the "first generation" of client/server tools, such as PowerSoft Corp.'s PowerBuilder, required developers to create third-generation language scripts,

these new tools offer a fairly sophisticated knowledge base to automatically generate code, Kastner said.

Unlike the existing generation, the new tools were designed to be multitiered. Developers can create one specification and then choose the target platform on which the application will run. The knowledge base then generates the required code for the specific platform, graphical user interface or SQL database, said Judith Hurwitz, president of Hurwitz Consulting, a consulting firm in Watertown, Mass.

Here and now

Both rules-based tools develop applications that can be triggered by events or respond to external occurrences. For example, a stockbroker might need an application to change when prices for a particular commodity reach a certain point.

Earlier attempts to target this market by Cooperative Solutions, Inc. were unsuccessful because of a premature entrance and a lack of multitier support, according to industry analysts. But these new companies may be hitting the market at the right time, providing a combination of capabilities that corporate developers are beginning to demand, according to some analysts and users familiar with the tools.

Dynasty began shipping its tools — also called Dynastix — earlier this year but will not officially unveil them until next month.

Forte last week announced that its tools, also called

Forte, are in beta but will not ship generally until next summer. Forte will also offer management tools that will reportedly administer and monitor the performance of the partitioned applications. The partitioning is significant because it allows developers to target the location for the performance of specific tasks. With other tools, "fat clients" can seek up bandwidth, which can create performance problems that these tools mitigate, Kastner said.

Early users of Dynastix's product — an aerospace firm, a claims processing company and a telecommunications firm — generally said the object-oriented structure and partitioning available with the tools are able to handle transaction-intensive, complex application development to distribute client/server applications.

For example, Sikorsky Aircraft Corp., an aerospace firm in Stratford, Conn., is using the Dynastix tools to create an application that will manage mission-critical data such as purchasing and shipment information from customers and suppliers.

The company was worried about scaling applications, the performance of other vendors' client/server products and management and maintenance issues. The pricing for Dynastix is \$8,000 per development workstation unit and \$50 to \$120 per runtime license, depending on platform.

Both Forte and Dynastix support Macintosh, Windows, OS/2 and multiple Unix platforms. Forte pricing will be announced when the product ships.

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MANAGEMENT

Damage control

Don't look now, but that sound you hear may be from the cracks appearing in the Microsoft operating system edifice.

Despite last week's vague statements that Windows NT shipments are "exceeding expectations"—exactly what those expectations were wasn't revealed—it's clear that Microsoft is still struggling to temper optimism over NT's market performance. The optimism is almost wholly of Microsoft's own making.

When Microsoft officials first began talking about NT 2½ years ago, they confidently positioned it as the heir apparent to Windows. But a few things changed between those early heady pronouncements and NT's actual shipment (three months ago). For one, Microsoft found that it couldn't fit the mother of all operating systems into less than 16M bytes of memory; a configuration used by about 2% of PCs sold today. For another, IBM got its act together with a really functional and efficient version of OS/2. Finally, Microsoft created a separate migration path for Windows users, a sort of "NT Lite" it calls Chicago.

So now the company is in damage-control mode. Microsoft has spent the last year recasting NT in a decidedly less ambitious role as a Unix competitor and telling everyone who will listen that no more than a million copies will ship in its first year (compared with about 5 million to 10 million for Windows 3.0). Rich Tung, Microsoft's general manager for enterprise marketing and products, told me last week that NT will someday overtake Windows shipments, but he said it'll be at least a couple of years before PC price/performance metrics give NT the momentum appetite a nonissue. I think he's overly optimistic. If half the PCs shipping in 1995 have 16M bytes of memory on them, I'll eat this page. And even if Tung is right, Chicago will change the market dynamics considerably, probably at NT's expense.

With the mass market clearly out of NT's reach, Microsoft has shifted its focus to the network server, where Unix is now dominant. No doubt NT will win respectable market share there, but there's no way it will overtake Unix in the foreseeable future. That means Microsoft will wind up in a trench war against a very established competitor, and that's a battle Microsoft hates to fight.

So in the ultimate tribute to IBM, Microsoft is using the old blue trick of fear, uncertainty and doubt, or FUD, to freeze customer buying decisions. See Microsoft, if you'll just wait eight to 12 months, you can have 32-bit capabilities with Chicago. Another year after that and you can get Cairo with its object-oriented file system. And at some undefined point there'll be groupware capabilities built into the operating system. Just wait. Just wait.

The trouble is, customers don't have to wait. All that stuff is available right now from Microsoft competitors. Uh oh. Crack.

Paul Gilpin
Paul Gilpin, Editor

Right people for the right job

The article, "Client/server breakdown" [CW, Oct. 4] was one-sided. The examples cited resulted from not getting the right budget and/or people to do each section of the project. Why can't management understand that data processing people cannot be masters of everything?

They need some temporary help to do the special tasks that are not usually done.

Get the right people in to do the planning and testing of standards. Hire the right people with special programming talents to do interfaces with different computer systems. Don't accept one choice in selecting software. Make outside consultants inform you if they are getting paybacks for their selection.

Devonia Gilbert
New Bedford, Mass.

Number-crunching doesn't add up

"City limits" [CW, Sept. 27] is instantly erroneous regarding cities' spending for this purpose.

Our hands-on experience in consulting with local governments across the country suggests annual operating budgets for information systems on the order of \$500 per employee and capital expenditures over a five-year horizon on the order of \$600 per year. Further, we have found that operating expenditures are about 1% of a typical general-purpose local government's budget.

Most local governments wish

they had anything even close to the 4% that the article says they have!

Sheldon S. Cohen
MMA Consulting Group, Inc.
Boston

John Scoggins
John Scoggins and Associates
Danielsville, Ga.

An examination of the statistics presented in "City limits" raises questions about their credibility. If I apply the level of expenditure in the city of Oakland, Calif., then our entire information technology budget would be \$2,500. That's less than the cost of one complete desktop workstation.

Here in Oakland, our information technology budget is about \$10 million per year. At that level, we spend \$2,500 per full-time employee. Based on my experience, that is probably a more realistic level. Yes, it is quite a bit less than the \$7,000 per employee in the private sector, but nothing even close to the figure of 50 cents cited in the article.

Stephen R. Ferguson
Office of communications
City of Oakland, Calif.

Sorting through postal systems

While the story "Postal Service sorts through automation" [CW, Oct. 4] quoted the U.S. Postal Service as saying its "core strategy is to sort mail using bar codes," it was interesting to note that our copy of *Computerworld* did not have a bar code on the address line.

This is because the Postal Service does not have equipment to sort magazines and newspapers that are not "8½ by 11 inches" or "digest size."

There are almost 3 billion pieces of mail a year—newspapers and

magazines such as the size of *Computerworld*—being hand-sorted through all the steps involved with delivery to the subscribers' door, and guess what: There are no current Postal Service plans to offer bar-coding to large, flat-size publications and newspapers.

Devonia Farley
Distribution manager
Parish Publishing
New York

"PC-based postal kiosk axed" [CW, Oct. 4] omits factual data and espouses erroneous opinions.

The Postal Buddy was not user-friendly. Nor did it provide changes of address quite the way the sidebar indicated. Heaven help us if this is Vice President Al Gore's idea of reinventing government.

Paying more to change addresses is not in the interest of the taxpayer. The United States Postal Service could forego profits on the machines in exchange for floor space if they had realized the projected savings on changes of address, but the procedures that the Postal Buddy provided apparently cost the Postal Service more than planned and provided no savings.

William B. Adams
Symbolix Security
Springfield, Va.



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► Cartoonist Rich Tennant is taking the week off

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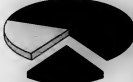
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Viewpoint

It may be obvious, but it isn't simple

Jim Stikeleather

There are only two things standing in the way of building systems that state business rules visible and accessible by users — technology and the way organizations work.

Patty Seybold was right when she said we need to make business rules visible and maintainable by users (CW, Oct. 4). The rate at which business is changing is just too rapid for those of us working in IS to keep up by reprogramming. Users must be able to manipulate and change rules as business circumstances dictate. But here's the catch: There's a world of difference between being on the trail of a solution and having one in hand.

At Kash o' Karry Food Stores, Inc., we've been working for two years to build an information architecture similar to the one Patry envisioning. It has turned out to be more difficult than we ever expected.

The work we are doing with object technology has led us to a three-tier information architecture. The first tier consists of basic business entities — person, item, truck, etc. — and the relationships among them. The second tier is made up of models, which are groups of entities interesting to accomplish some business purposes. All the while, the concepts of rules and rules are introduced. The third tier consists of views and events that allow observation of and influence on the models.

For reasons of consistency and integrity, IS should retain control of the basic objects, but we've concluded that users should be able to manipulate the rest — rules, roles, views and events. However, three big obstacles block the

way to actually achieving that ideal — technology, people and organizations.

We have not yet found a commercial product that supports the rule/constraint mechanism we need and that can be integrated with the other mechanisms in our object architecture. In the interim, we are programming calculation-based rule types (price X < competitor Y, price X > cost, etc.) and letting users modify the variables. This won't work for long, however, because it doesn't handle rule conflicts or symbolic rule processing.

People also present difficulties. Human beings don't operate by well-formed, well-defined, consistent rules. Many of the business rules people operate with are based on habit

rather than logic, are highly exception-driven and cannot generally be described by the user with any degree of accuracy.

Ask a group of people performing the same function how they do their jobs and you will almost always get variation on a common set of rules and another set of highly individual rules. None of these will necessarily be better than others because the business has been operating with all of them in effect. In fact, it can be very dangerous to impose uniformity because you may actually upset some important balance in the ecology of the business.

Organizations are also dauntingly complex. Rules vary among departments, which is why accounting and marketing can start with the same data and generate very different spreadsheets, graphs and analyses. If you do find some universality, such as a pricing strategy, you still need to be careful because their universality may be more apparent than real. Lower-level employees, exercising good judgment, may ignore price policy in some cases. Patty was right. We do need to develop visible rules and put them in the hands of users. Dealing with the complexities involved is delicate and painstaking work, which cannot be accomplished overnight. We'll be happy if we can do it in the next three to five years.

Stikeleather is director of systems development at Kash o' Karry, a grocery chain based in Tampa, Fla.

You get what you don't pay for

When you make computing and communications free, you encourage waste and abuse

Michael Schrage

While reading my E-mail recently, I stupidly downloaded what turned out to be a 6,000-word press release masquerading as a message from some PR jerk. Instead of flaming, I very politely asked to be completely erased from his distribution list.

Next time I may not be so polite. And there will definitely be a next time because it costs guys like this virtually nothing to tell me what I don't want to know. The Internet is cheaper than a 25-cent stamp, faster than a fax and as reliable as Federal Express. This cheap can launch thousands of these miserable misuses with the tap of a key.

This is not a lament about junk E-mail but about underlying issues that matter far more than next-generation outbursts on the Internet. There's an economic trend here that threatens to undermine the value and importance of enterprise-wide computing and if companies don't start coming to grips with it now, they are going to royally screw up their information infrastructures.

The problem is simple economics. Today's dominant information technology trend is transforming interconnectivity and computational cycles into marginal costs. Information technology organizations are hell-bent on

making corporate data systems as accessible, transparent and interoperable as technically possible. Using client/server, they're pushing to cut transactions — retrieving a file, updating an inventory, scanning a database — as close to zero as possible. In econo-speak, they're turning teleprocessing into a "free good," much like the air we breathe and the internal telephone calls we make. This is a horrible, counterproductive mistake.

What happens when organizational goods and services that were once costly become free? You get a blizzard of paper memos. You hear 40 voice-mail messages a day. You get deluged with invitations to immeminently designed desktop media presentations.

Remember when spreadsheets were actually time-consuming and hard? When VisiCalc and Lotus' 1-2-3 made spreadsheeting a snap — made omelette analyses into "free goods" — companies caught market madness. Indeed, many corporate budget committees now refuse to look at more than three spreadsheet scenarios because they've learned how wasteful it is to compare 30 versions.

When the marginal cost of an enterprise-wide replication of a Notes database or a multimedia presentation drops to zero, guess

what your virtual in-basket will look like.

Offering "filters" and "agents" to screen out the cybercrash is exactly the wrong answer. It avoids the problem instead of confronting it. You fight an economic problem with an economic solution. Organizations must stop turning information technology into a free good.

Media without market discipline breeds pathologies of wastefulness. Markets matter. That's why it's naive to invent more thought in designing chargebacks than it does in adopting CASE. Why should E-mail bandwidth be free? Require a digital "stamp" to send it.

The reason our world sinks in pollution is that our natural resources have been managed as free goods. Who cares if we mess them up a bit? By recklessly trying to make internal computing free, companies similarly mismanage their data resources. The ecology of economic organizations demands that managers understand that the most valuable thing in organizational life isn't free.

Schrage is a fellow at the MIT Sloan School Center for Coordination Science and the MIT Media Lab. His Internet address is schrage@media.mit.edu.

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LOTUS 1-2-3 RELEASE 4
RATED #1.
CAN MICROSOFT
BEAT A STRAIGHT FLUSH?

Every year Lotus[®], Microsoft[®] and the others go head-to-head in reviews by the top industry publications. So far this year, the results are resounding. And redundant.

Lotus 1-2-3® Release 4, Ami Pro® 3.01, Freelance Graphics® 2.01, Approach™ 2.1 and Organizer™ 1.1 are collecting honors for setting new standards in power and usability. With scores that are setting new records in their categories.

In a matter of months **1-2-3 Release 4** has already been acknowledged by reviewers and users as the spreadsheet of choice and the way of the future. It earned the highest Windows™ spreadsheet score ever by *InfoWorld*. And more recently an independent usability study showed that 67% of Microsoft Excel 4.0 users tested say they would prefer to be using the new **1-2-3 Release 4** for Windows.

Ami Pro 3.01 word processor is our Cinderella story. For years, it's been ranked above both Word and WordPerfect® by reviewers, but many users had been reticent to make the switch. Now that's changed. *PC/Computing* has rated Ami Pro ahead of WordPerfect 5.2 in 8 out of 8 categories. And users by the hundreds of thousands are discovering it's a better fit.

Freelance Graphics 201 presentation graphics software is once again outshining Microsoft PowerPoint® and Harvard Graphics. In *InfoWorld*, Freelance dominated the #2 finisher by the largest margin ever. In *Software Digest*, it earned a five star rating vs. three stars for PowerPoint and



InfoWorld Windows Spreadsheet Ratings:	
1-2-3 Release 4 (11/93)	7.8
Excel Release 4.0 (10/93)	6.9
Quattro Pro Release 1.0 (04/93)	6.5

“Approach is a big, big winner.”
FC WEEK 4/20/93

Lotus Ami Pro 3.0	92.9
Microsoft Word for Windows 2.0c	87.2
WordPerfect 6.0 for DOS	73.6
WordPerfect 5.2 for Windows	73.4

“Organizer is one of the most appealing Windows applications yet.”
PC WEEK 9/93

Freehand Graphics Version 2.0	98.9
Harvard Graphics Version 2.0	80.4
Parasession Version 2.1	74.8
PowerPoint Version 3.0	83.6
WordPerfect Presentation Version 2.0	84.8

Harvard Graphics. In PC/Computing it scored an 'awesome 98.9 out of 100'

Lotus Approach, the first full-powered relational database designed from the ground up for general business users like us, has already earned over 25 major industry awards including the 1993 Windows Magazine Reader's Choice Award and Best Buys from both *Corporate Computing* and *PC/World*.

And **Lotus Organizer** the award-winning personal information manager is widely acknowledged as the best product of its kind for the Windows platform. With a Reader's Choice Award from *Byte Magazine* and a Win Award from *Windows Magazine*, Organizer completes the set.

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[illegible]

Desktop Computing

Intel to verify PC Pentium upgrades

By Michael Fitzgerald

Intel Corp. has established a program intended to iron out wrinkles in its Pentium upgrade strategy.

The Intel Verification Program, which has lined up support from IBM PC Co., Compaq Computer Corp., NCR Corp. and some 40 other vendors to date, will tell users whether the system they are purchasing is guaranteed to be Pentium-upgradable.

Intel designed the program in the wake of vendor confusion over the proper way to implement an upgrade-oriented OverDrive version of Pentium, called the P247, which will ship in the second half of 1994.

Changed expectations

An Intel official freely acknowledged that the company had developed the verification program to modify its initial ex-

pectations on a 486-to-Pentium upgrade strategy.

"We thought [upgrades] would be focused on DX2 to Pentium, and it turns out that... [Pentium upgradability] is designed in from low-end SXs," said Paul Otellini, an Intel senior vice president. Otellini said the prevalence of universal motherboards, many of which can support any processor from a base 486SX to a top-of-the-line DX2 through the flick of a switch, caught Intel by surprise.

Analysts said Intel had to establish the verification program to prevent users from buying the wrong version of the upgrade chip. They said the lengthy development lead time for the P247 had caused some of the problems for Intel.

"Basically, it's a cover-my-ass strategy by Intel," said Jeffrey Henning, an ana-

lyst at BIS Strategic Decisions in Norwell, Mass.

Intel will charge hardware makers \$5,000 per model tested to verify that a system is upgradable, with a cap of \$50,000 per year. Otellini said the price was perhaps half the cost that Novell, Inc. charges to certify a server as NetWare-compatible, for instance. The nominal fees are not expected to cause vendors to raise system prices.

Black, white or blue

Ottellini said the verification program, combined with the upgrade strategy, should eliminate any user concerns about the color of their upgrade socket.

Various systems use blue, white or black as the socket color. Intel will produce several different versions of the P247, and users will only need to know what system they have to pick a chip.

Once tested, systems will receive a small logo to show they are certified. Otellini said the logo will be less promi-

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nent than the "Intel inside" campaign.

He also said Intel will continue to use the verification program because there will probably be "complexities" in upgrading from Pentium to future Intel chips.

Compressed data will go from DOS to OS/2

Stac utility steps on Microsoft plan to encourage incompatibility with OS/2

By Ed Scanlon

At the upcoming Comdex/Fall '93 show, Stac Electronics, Inc. will announce that it is building a conversion utility with its Stacker for OS/2 compression program that lets OS/2 and DOS users transfer compressed data between the two operating systems.

The conversion utility converts data compressed with DoubleSpace, the compression technology used in Microsoft Corp.'s MS-DOS 6.0 and its upcoming Version 6.2, as well as data compressed with Adisort, Inc.'s SuperStor utility, which is provided with IBM's PC DOS 6.1.

Stac has timed the introduction to coincide with the debut of IBM's new version of OS/2, code-named Perseus, which works transparently with Intel Corp.-based PCs running DOS and Windows. Stac's conversion utility is also compatible with Perseus.

Stac officials said Stacker for OS/2 with its conversion utility makes it easier for DOS and Windows users to evaluate OS/2; they added that Stac is actively supporting OS/2 and Perseus.

Incompatible with OS/2

Until now, DOS users who used DoubleSpace had no way of putting OS/2 on their systems because it was incompatible.

"DoubleSpace is a tactical effort on Microsoft's part to stop encroachment of OS/2

onto their turf," said John Bromhead, Stac's vice president of marketing.

The inability to easily transfer compressed data from MS-DOS and PC DOS over to client/server operating systems such as IBM's OS/2 1.1 and Microsoft's Windows NT has been a minor nuisance for some corporate users.

Microsoft officials recently said one of the items on users' wish lists for Windows NT was compatibility with DoubleSpace. They said it would most likely be provided in the next update of the operating system, due sometime next year.

With the release of MS-DOS 6.2 and the improvements made to DoubleSpace — most notably the compression utility's Uninstall feature — Stac believes Microsoft has left the door open to make significantly more Stac sales.

"Their Uninstall feature will prove to be a big boon to users who want to remove DoubleSpace from their drives," said Ann Gaskins, Stac's product marketing manager for Stacker 3.1 for Windows and DOS.

Microsoft has made several improvements to DoubleSpace including a feature

called DoubleGuard that better protects users against data corruption. Some users said problems in DoubleSpace caused them to lose data earlier this year.

Strategic shift

While Stac will continue to support DOS and Windows, the company's strategy will increasingly focus on more advanced client/server operating systems and network operating systems such as OS/2 and Novell, Inc.'s NetWare and UnixWare.

"Our vision is taking on more of a corporate view. We believe if you compress data once that wherever you send it over the wires, you can still view it and it stays compressed," Bromhead said.

To reach this goal, Stac believes it must have competitive products on all major platforms. Currently, it has versions for DOS and Windows, OS/2 and the Macintosh. Novell will soon integrate a version with its NetWare DOS 7.0.

"I think you will see our LZS compression engine moving to every piece of client software that Novell does," Bromhead said.

"DoubleSpace is a tactical effort on Microsoft's part to stop encroachment of OS/2 onto their turf."

— John Bromhead,
Vice president, marketing
Stac Electronics



It fits a thumb, but this new 64M-bit dynamic RAM chip from IBM and Siemens AG can hold up to 6,400 pages of double-spaced text, which would cover two reams of paper. Or using a common industry measure, fill roughly 2½ volumes of the Encyclopedia Britannica. Currently available in sample quantities, the DRAMs are among the first 64M-bit chips in the industry.

Christopher Lindquist

Ubiquitous Microsoft

It's been a few months, but I'm finally back on track, so hello again.

My new post has taught me a couple things. One is that users are probably spending a good number of MFPs on

decidedly nonproductive pursuits (read: games); the other is that Microsoft, like McDonald's, really is everywhere. Don't be surprised to see it in your cable TV box or your car in the next couple of years.

Speaking of Mickey D's, would you buy a crookbook from them? Somehow (think *Building the Perfect Burger* by R. McDonald wouldn't be much of a seller except on the humor charts. Angry nationalists would probably picket any bookstore with the stomach to carry it).

OK then, would you buy a book from Microsoft on creating bug-free software? The punch line is that not just one, but

two such tomes exist. What's even funnier is that some Internet surfers have read them and say they're good.

One message summed it up nicely: "The review given by one of our engineers about a month ago recommended that we read [the books], even though it appears Microsoft programmers haven't."

If you're interested in discovering Microsoft programming secrets so secret even Microsoft doesn't know about them, look for *Writing Solid Code: Microsoft's Techniques for Developing Bug-Free C Programs* by Stephen A. Maguire (\$24.95) and *Code Complete: A Practical Handbook of Software Construction* by Steve C. McConnell (\$35).

Would you know my name?

Apple reported recently that it had sold 50,000-plus Newtons worldwide. Reports from purchasers indicate that 15% have gotten the handwriting recognition to correctly spell their name in fewer than three tries, 55% have not and 27% have changed their names to "YrL31." The other 3% no longer remember their names.

The Newton's handwriting recognition is not the only problem, according to the 'net.

One user reports the following: "According to rumor, certain early units have a hardware defect, several users on the 'net have reported that after getting their units replaced, they are having a much better time with Newtons."

"If you have severe problems with a flicking screen, unstable pen tracking [to test this, turn off both recognizers and try drawing circles or straight lines]; if your Newton won't start up when you want it to, even on a fresh set of batteries; or your Newton won't recognize handwriting when the AC power adapter is plugged in, contact (800) SOS-APPLE. You may have a bad unit. Don't worry, all the Newtons in existence are still under warranty."

Risk list

Here's good news for anyone without Internet access who still wants to get a listing from the "comp.risks" group, which regularly compiles a variety of computer risk-related information such as viruses, hacking and bugs into a file. You can now have the "risk" list faxed to you.

Call (818) 225-2800 or fax (818) 225-7203 for more information. If you do have Internet access and would still like to get the fax, send E-mail to risks-fax@vnet.com.

Gates getscha

It appears that the electronic Bill Gates (impersonator) has surfaced once again—this time inside Microsoft. An Internet subscriber says that a number of Microsoft employees checked their E-mail one morning and discovered messages from "Bill," saying they were fired.

The real Bill apparently is not amused, and the pretender had best stay hidden

if he wants to keep his head—and his job.

Back to the future

Bulletin board services are always good for a conspiracy theory or 20. This is a recent favorite concerning either between Apple and Next, Inc. to put Next-Step on the PowerPC platform.

"I would be a homecoming for Steve Jobs. I have a warped theory that the whole reason for Next was that Steve supported a faction in Apple that wanted the Mac [operating system] to evolve in a Unix direction, but the new corporate powers wanted otherwise."

"That faction wanted to prove them wrong, and Jobs was in agreement. Final vindication would be if Apple swallowed [Next] and used their product, and Jobs returns to the board to lead them back into the sunlight."

Stranger things have happened, and the future of Digital's Alpha chip may be one of them.

Talk was floating on the Internet that Digital is going to sell its Alpha chips to Mercedes-Benz to operate its engine management, alarm systems, navigational aids, and other luxury auto toys. That may be, but will it run Windows NT?

Lindquist is technical editor at the upcoming magazine *Electronic Entertainment*. He can be reached electronically over MCI Mail at clndquist, Compuserve at 7261280.2 or the Internet at christi@netcom.com.

Briefs

Manage the project

Microsoft Corp. recently previewed Version 4.0 of its Project project management software, which will tentatively include Wizard, support for a true drag-and-drop protocol for making assignments and integration with Schedule+. Separately, Microsoft is offering a \$100 rebate on Microsoft Office and Microsoft Works for the Macintosh through Jan. 31. Version 4.0 of Project for the Macintosh will ship by spring.

Apple pushes CD-ROMs...

Apple Computer, Inc. will sacrifice an estimated \$100 million in profits this year by selling its CD-ROMs at cost to seed the market for interactive multimedia products, Executive Vice President Len Dierly said recently. He predicted that the surrender of \$100 in profit on each \$225 CD-ROM drive will result in sales of 1 million Apple CD-ROM drives this year, up from 40,000 last year. Dierly said Apple will also soon start selling equipment enabling CD-ROM programs written on the Macintosh to run on IBM-compatible computers.

...and Newton on the Mac

Apple has made several moves to get its Newton MessagePad connected to

the outside world. Next week will see the arrival of the Apple Wireless Messaging Service, which will allow domestic Newton customers to receive wireless messages through the paging network provided by MobileComm, a subsidiary of BellSouth Corp. Monthly fees will start at \$21. Apple has also begun shipping the Newton Connection Kit for the Macintosh, a key integration product through which users can connect their MessagePad to a Macintosh to create, view, edit, synchronize and back up their MessagePad information. A Windows version is to ship later this fall.

On the PowerPC front

In other Apple news, the company has announced that seven more developers have unveiled plans to deliver native versions of their applications for the Macintosh PowerPC. They are Artworks Systems NV, Custom Software, Inc., Praxtel Design Corp., Grapholite, Great Plains Software, Rhode Software GmbH and Wolfram Research, Inc. A native application is one that has been recompiled for the PowerPC chip. A total of 18 developers have announced native support on Apple's platform.

Windows backup

Symantec Corp. recently released Version 3.0 of the Norton Backup utility for Windows, which supports DOS 6.0, can be customized and allows data

backup of network file servers on Novell, Inc. NetWare networks.

E-mail the professor

Lotus Development Corp. has established the Lotus Education Consortium, under which universities are invited to share data electronically using Notes and CC-Mail. Lotus also announced that ComputerLand Corp. will offer customers the option of having Lotus SmartSuite preinstalled on their systems.

NCR opts for AT&T logo

Seeking to establish brand-name recognition with retail channel customers, NCR Corp. announced that its 1480S3 PC will carry through retail computer and consumer electronics stores will carry the AT&T logo and price tags starting at \$999. Lookers, based in Woburn, Mass., and Incredible Universe in Fort Worth, Texas, will be among the first stores to offer the PCs under the new program.

Energy-compliant desktop

Acer America, Inc. has made its customer-oriented Arcus desktop line EPC compliant with the Environmental Protection Agency's EnergyStar program.

Chip ID bracelet

With the theft of computer chips rising, Intel Corp. plans to become the first semiconductor company to stamp

serial numbers on its microprocessors. By stamping an individual number on each postage-stamp-size chip, it will be possible for police to return recovered chips to their rightful owners, an Intel spokesman said last week. Two weeks ago, TEG Micro Technology in Fremont, Calif., was hit by armed robbers who escaped with \$500,000 in chips, including many 1468 microprocessors that retail for up to \$480 apiece.

Toshiba service

Toshiba America Information Systems, Inc. in Irvine, Calif., is scheduled this week to launch several service and support programs, including an optional three-year limited warranty on selected portable and desktop products. Another option is an optional coverage for screen damage to portable computers.

PowerPC silicon

IBM and Motorola, Inc. recently said they have produced the first silicon for their second PowerPC microprocessor, the PowerPC 601.

Symantec distribution

PC distributor Tech Data Corp. in Clearwater, Fla., has signed an agreement to distribute Symantec Corp.'s application and system software, including Norton Utilities, Norton Desktop for Windows, Norton Administrator for Networks, Q&A, Act 1, PCAnywhere and Symantec C++.

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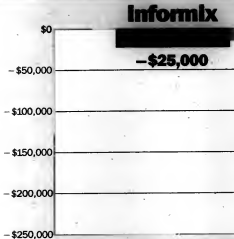


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	Cost	Complexity	Products Required on Mainframe	Communication Protocol
Informix	\$25,000	One Product: INFORMIX-Gateway	No	DRDA
Oracle	\$170,000	Three Products: SQL Connect, SQL Net, Protocol Driver	Yes	Proprietary
Sybase	\$210,000	Two Products: Open Gateway/DB2 Net Gateway for OS/2	Yes	Proprietary

PC-X fills in interoperability holes

By Jean S. Borman

A new class of software is blurring the edges of PC applications and the X Window System presentation of enterprise software. PC-X software, as it is being called, connects PC users with mainframe and Unix applications shared throughout a corporation.

Users who have tried PC-X software said it is an easy way for them to share applications across an enterprise. It allows PC users to work with familiar spreadsheets and word processors one minute and to access data stored on Unix servers or IBM mainframes the next.

Priced at \$500 or less, PC-X licenses are an inexpensive way for PC users to

access shared X-based applications, information systems managers said. Buying an X terminal or Unix workstation to run the X Window System would cost several thousand dollars more.

Because the X Window System runs the same way no matter where it is displayed, PCs can display the same graphical information shown on Unix workstations or X terminals — or even on IBM 3270 terminals. The X protocols, managed by the X Consortium in Cambridge, Mass., define the uniform mechanism by which a terminal, workstation or PC displays graphical information over a network.

PC-X software's leading feature is flexibility, IS managers said. Fresno County in California is using PC-X software on OS/2 and PC DOS machines to view files on IBM RS/6000 Unix servers and an IBM mainframe.

"We're replacing IBM 3270 terminals with PCs capable of emulating X Window [System]," said Will Jacobson, a senior systems programmer who oversees cost management and geographical information systems running on networked RS/6000s. The OS/2 machines run an IBM product called PMX, and the DOS machines run PC-X software from Hummingbird Communications Ltd. in Markham, Ontario.

not wish to be identified, said PC-X software is a practical way to link PC desktop-support software with mission-critical, number-crunching applications running on Unix servers.

"There are no Unix desktop programs to speak of," the manager said, adding that there are notable exceptions, such as a Unix-compatible version of Lotus Development Corp.'s Notes. Unless the Common Open Software Environment's common Unix desktop bonnie received Unix applications, he said, PC-X will let users mix and match PC and Unix applications on the same screen.

Industry analysts said they believe PC-X software will push X far beyond the estimated 2 million users of Unix workstations — and hundreds of thousands of X terminals worldwide — in the next few years. Leading PC-X vendors include Network Computing Devices, Inc. in Mountain View, Calif.; AGE Logic, Inc. in San Diego and Hummingbird.

Growth market

About \$96,000 PC-X software is shipped this year, compared with about 300,000 X terminal shipments expected by year's end, according to market research firm International Data Corp. (IDC Oct. 25).

The X Window System is for large corporations that want all their users to be able to access common information, said Peter Shaw, president and chief executive officer at AGE Logic. "IS managers are learning that the protocol that allows them to connect heterogeneous components on a network is X," he said.

Users said they realize that network and systems vendors have a lot of homework to do before distributed computing is commonplace. Until then, PC-X software will allow them to take a shortcut to interoperability. For Fresno County, that means accessing mainframes, minicomputers and Unix servers from the comfort of a user's PC. "When you start to go beyond your PCs and into the network," Jacobson said, "your users need to be able to get out to these multiple platforms."

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Desktop central
Users are innovating with PC-X software, making the desktop the focus of network computing.

Xerox Corp. uses the X Window System to enable electrical design engineers in "piggyback" their Unix design applications. One Unix workstation can host two users, since one of them accesses the Unix software through a PC-X window. That enables users to share the same CPU cycles, said Maurice Moon, a Xerox engineer in El Segundo, Calif., who is testing the configuration.

It is also possible, he said, for a remote PC to access the Unix workstation, supporting the idea of telecommuting via modem in the crowded Los Angeles area. One Wall Street IS manager who did

Is it a client?

In a role on the PC-X approach, Unix workstations can serve as PC-X clients.

X standards.

SurfSelect, Inc.'s Web software, introduced

In May, allows

Microsoft Corp.

applications to run

unchanged on Unix

workstations, opening

Xa protocols. Web

works on Sun

Microsystems, Inc.

and

Hewlett-Packard Co.

workstations, and

more vendors are

expected to sign up

to support it by 1994.

Agents get learn-at-home system

What is believed to be the largest private use of a "distance learning" system — Prudential Insurance and Financial Services' system to provide training, development and certification to 17,000 insurance agents at 2,800 locations — was made public recently.

The so-called Prudential Learning System was developed by VMI Learning Systems, an Ilesia, N.J., firm that is under a multiyear contract with Prudential for the application.

The system combines a number of technologies into a "learning center." The center contains a PC with modem, a CD-ROM player and a videotape player.

Every day, a Prudential host downloads curriculum, sales and customer information to the learning center workstation. During the session, the agent's test scores are uploaded back to the host, where at what progress is measured and tracked in weekly reports to field and headquarters managers. —Elite Reader



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Desktop Computing

SBT Accounting Systems has added a suite of graphical customization tools to the Professional Series 2.5, its advanced network accounting system for Windows and DOS.

According to the Sanualito, Calif., company, the series gives computer consultants and end users the power to easily configure reports, screens and commu-

nications for SBT Pro Series.

The tools allow users to tailor reports, customize data entry, access accounting data from remote sites, display custom queries and share accounting information with other Windows applications.

The system costs \$505 per module for the standard Multitasker version and \$1,295 per module for the Unlimited (source code) version.

► **SBT Accounting**
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Poe-It Management Services, Inc. has introduced MicroMan for Windows Time Entry, a Windows-based module.

According to the Santa Monica, Calif., company, the module was designed to bring an easy-to-use graphical user interface to time entry, a function of MicroMan II, the company's PC-based project and staff management system.

Highlights include a spreadsheet format for entering project and nonproject work on one screen and expanded file-

management about project events. Users can designate time as billable or nonbillable, and the product can facilitate accounting for expenses.

MicroMan for Windows Time Entry comes bundled with MicroMan II for DOS and runs on any IBM PC or compatible with 640K bytes of memory and 7M bytes of hard disk space.

The complete MicroMan II package, including MicroMan for Windows Time Entry, costs \$2,985.

► **Poe-It Management Services**
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Microsoft Corp. has announced Microsoft Windows Sound System Version 2.0, a product that offers improved voice recognition and audio compression. The system was designed to enable the integration of audio with any Windows application.

The Windows Sound System is available in two versions: one includes the Windows Sound System software and a microphone; the other offers a Windows Sound System audio board and headphones along with the software and microphone.

According to the Redmond, Wash., company, users who have audio boards can inexpensively add voice recognition, annotation and selective proofreading to every application on the Windows operating system.

Features include Microsoft's custom-designed directional microphone and a voice-recognition application called Voice Pilot.

Prices start at \$79.
► **Microsoft**
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Solomon Software has introduced the Solomon IV/Windows System Evaluation Kit on CD-ROM, a product designed for anyone who wants to become familiar with Solomon IV's open architecture and industry-standard tools such as Novell, Inc.'s NetWare SQL and Visual Basic.

According to the Findlay, Ohio, company, the product includes Novell's NetWare SQL (five-user license), General Ledger, System Manager, Order Processing, Inventory, Accounts Payable, Accounts Receivable, the RTR SQL Report Writer and the Solomon IV Customization Manager.

The product costs \$99.
► **Solomon Software**
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Nashen + Associates has introduced PaperClip Imaging Software, an access tool for desktop document management.

According to the Montreal company, PaperClip permits users to access data files, electronic mail, scanned images and fax documents from existing software applications.

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in a tiny cedar seat, in coach, staring blankly at a fly nimbly exploring the OXYGEN PANEL above him. It had come down to a scheduling conflict. One more FREE product seminar, half-day, inevitably had deli sandwiches... potato chips that had gotten too close to the lobster dills and gone soggy. Or this jinxed to clean up yet another set of branch communication difficulties in Opelika, St. Louis, and San Antonio. So the picture of this fly on the ceiling RUBBING ITS FRONT LEGS TOGETHER with an ominous droight didn't have the significance for him

if might have had he seen that MEANWHILE, BACK AT THE SEMINAR THE REMOTEWARE FOLKS WERE SPINNING COLORFUL TALES OF SUCCESSFULLY-IMPLEMENTED FIELD COMMUNICATIONS SYSTEMS, HOLDING CHARLIE'S TECHNO-PETERS FROM COMPETING COMPANIES CAPTIVE WITH THE PROMISE OF THOUSANDS OF FULLY-AUTOMATED, EASY-TO-MANAGE AND UNATTENDED DIAL-UP COMM SESSIONS, AND RIVETING ACCOUNTS OF REAL COMPANIES WITH HUNDREDS OF NOBLE CORPORATE LAPTOPS AND REMOTE BRANCH OFFICES USING CENTRALLY-CREATED AND MANAGED ELECTRONIC FORMS, DOCUMENTS, AND REPORTS, ALL LINKED TO CENTRAL SYSTEMS AND DATABASES, AND ALL NEATLY SUPPORTED BY INTEGRAL ELECTRONIC SOFTWARE DISTRIBUTION CAPABILITIES!

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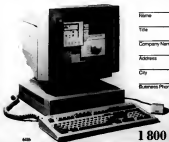
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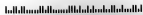
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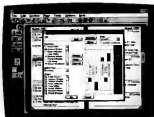


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Workgroup Computing

Servers

Data General augments Avion with 5500 system

By Craig Stedman

■ Data General Corp. last week followed up its late June introduction of enterprise-oriented Avion servers based on Motorola, Inc.'s superscalar 88110 microprocessor with the addition of a low-end AV 5500 system targeted at small-business and departmental users.

Because of the 5500's low cost, DG said it should also be a key component of Avion clusters scheduled to go into beta testing in December and ship in February. The clusters initially will be built around Oracle Corp.'s Oracle Parallel Server database, a parallel version of Oracle 7.0.

Sybase, Inc.'s Sybase Replication Server software for copying data between multiple Sybase databases will also eventually be supported for clustering purposes; said Stephen Gardner, DG vice president of Avion marketing.

Support for two

The 5500 supports two of the 40-MHz 8810s, compared with four on the mid-range AV 8500 and a planned 16 on the high-end AV 9500. The 5500 can handle 20 to 125 users and is rated for uniprocessor performance of 60 transactions per second, DG said.

Hardware pricing starts at \$14,490 with 32M bytes of memory and a 500M-byte disk drive, according to the Westbrook, Mass., company, which last week reported another loss and more layoffs plans (see chart, page 44). The DG/UX operating system is priced separately, with a 100-user license costing \$10,000.

Gardner acknowledged that DG's AV 4800 low-end models had been "hooking a little odd" compared with rival Unix systems from Hewlett-Packard Co., IBM and Sun Microsystems, Inc. "Most of our business today is coming out of the higher end," he noted.

Jim Brennan, an analyst at WorkGroup Technologies, Inc. in Hampton, N.J., said the 5500 should get DG back into the low-end race.

"They have a very focused niche market" in small to medium-sized accounts, Brennan said. "They know what they're going after and they're not trying to spread themselves too thin."

Poworth-Galbraith Lumber Co., a Dallas lumber and building materials supplier that has used DG's proprietary Eclipse MV systems in its stores for the past 15 years, is in the process of switching a pilot Avion installation from an AV 4825 to a 5500, said Jack Poworth, chief financial officer.

High expectations

The company wants to shift its 50-plus locations to Unix systems during 1994, Poworth said. The 4825 has performed "admirably" thus far and Poworth-Galbraith has "high expectations" for the 5500, but it also plans to look at the IBM RS/6000 and other Unix platforms, he added.

Poworth noted that the pilot is meant in part to test an in-house software package that has not been available on the Avion line until now. "We just want to make sure we can run our Avion and kind of get a bird in the hand before we put it all out to bid" later this year, he said.

Ramona London, senior technical analyst at Sky Chefs, Inc., an airline catering firm based in Arlington, Texas, said the promised clustering support "could certainly prove interesting, especially if it's built for Oracle." Sky Chefs uses Oracle as the main database with its Avions, she added.

SAS rolls out update

Products serve multiple facets of data management

By Gary H. Anthes

SAS Institute, Inc. has begun shipping an updated line of tools for information management, analysis and presentation, Release 6.09 of the SAS System contains several new products and supports three new environments—Microsoft Corp.'s Windows NT, Digital Equipment Corp.'s Alpha AXP workstations running OpenVMS and Convex Computer Corp.'s ConvexS.

One new product, available previously in a beta version, is SAS/CPE for Open Systems, which the company said is the only system- and network-performance tool available for Unix systems. It runs under Sun Microsystems, Inc.'s Solaris, Hewlett-Packard Co.'s HP/UX and IBM's AIX.

SAS/CPE takes performance data from commercial network products and summarizes, analyzes and reports it in accordance with user-specified parameters. It accepts feeds from Sun's SunNet Manager, Cabotnet Systems, Inc.'s Spectrum, HPI's Performance Collection Software, Unix accounting data, Loadwerk Systems Corp.'s ProbeNet and ProbeX and Concord Communications, Inc.'s Trakker.

Air Products and Chemicals, Inc. in Allentown, Pa., runs SAS/CPE on a Digital Alpha AXP workstation to analyze performance data coming from a VAXcluster via the VMS monitor command, James Hogarth, principal information technology specialist, said SAS/CPE is a better tool than the alternative, Digital's Performance Solution.

"SAS/CPE gives you a nice way to store and track data for long-term analysis. And it puts data in SAS format, which I am very familiar with," Hogarth said.

SAS/CPE for Open Systems can be licensed for an introductory first-year fee beginning at \$2,940.

SAS also introduced SAS/Access for direct and transparent access to SQL Server and databases from Oracle Corp., Sybase, Inc. and

Ingres Corp. SAS/Access interfaces allow people to use these database management systems without having to create intermediate files, as was the case. It is priced at \$885 for a one-workstation, first-year license.

Merrill Lynch & Co. in Somerset, N.J., has been benchmarking new SAS components under NT for about three months. "We've been real pleased with the SAS implementation part, but we've been a little bummed by NT overall," said John Crawford, department manager.

SAS/CPE for Open Systems shows network performance and problems at a glance

"NT's performance running SAS has been exceptional, but its performance running everything else has been marginal."

Crawford said SAS may succeed under NT because in many cases the SAS software bypasses the operating system, making direct calls to the hardware. Merrill Lynch evaluated SAS running under MS-DOS with Windows, NT and OS/2 on 486-based PCs and found it ran fastest on NT.

"NT's performance in the new SAS release include: beta versions of SAS/Imag, for image processing and SAS/GIS, for processing of spatially-related data."

Unix, Windows and NT versions of several mainframe products: SAS/ETS for building executive information systems, the SAS/Calc spreadsheet package, SAS/PI-Clinical for the pharmaceutical industry and SAS/Lab for guided data analysis.

Alliance pursues standardized Ethernet

By Stephen P. Klett Jr.

A coalition of networking vendors led by Grand Junction Networks, Inc. last week aired a specification that will provide users with interoperable products for 100M bit/sec Ethernet networks.

The goal of the specification, called 100Base-X, is to allow vendors to independently develop interoperable Fast Ethernet (100M bit/sec) products running over two pairs of Category 5 shielded twisted-

pair, shielded twisted-pair and fiber-optic wiring.

100Base-X was pioneered by Grand Junction and jointly developed with members of the Fast Ethernet Alliance, which includes 3Com Corp., David Systems, Inc., Intel Corp., LAN Media, Lanbet Data Communications, National Semiconductor Corp., SynOptics Communications, Inc. and Sun Microsystems, Inc. The alliance plans to submit the 100Base-X specification to the IEEE 802.3 committee in November.

ber for standards consideration.

While industry observers agreed 100Base-X was a step in the right direction, they said standardized Fast Ethernet products were probably still at least three years away from reality.

This specification is "not a big step or a baby step, but it is a step forward," said Paul Nikitich, a member of the IEEE Ethernet standards committee. "Everyone still has to have more or less agree to utilize a particu-

lly, page 43

Workgroup Computing

PC, SQL databases square off

Users debate on best client/server system to deploy when downsizing

By Michael Vizard
LAKEBUENA VISTA, FLA.

The debate over how to choose the right database to deploy when downsizing was in full swing at Microsoft Corp.'s recent FoxPro developers conference here as proponents of PC database systems squared off against supporters of SQL databases.

According to backers of networked PC database systems, information systems managers are promoting a vision of downsizing and client/server computing that requires the adoption of SQL databases at the expense of lower-cost PC databases that provide equal or better performance.

"It's a very hard sell to go into an IS organization. That's why you have to go in at the departmental level," said George Goley IV, president of Micro Endeavors, Inc., a consultancy in Upper Merion, Pa.

For example, Goley deployed FoxPro at the U.S. Bankruptcy Court of Los Angeles even though the national IS organization for the bankruptcy system favors SQL databases.

"The way to compete is to put a rapid

prototyping model in front of management instead of fighting over a 600-page system specification. Don't try to compete with the big iron guys in obsolescence," Goley said.

Cost not enough

But it is doubtful that the lower cost of networked PC databases and their solid performance numbers, which Goley said can match SQL databases by supporting as many as 600 transactions per second across millions of records, will turn the tide away from SQL databases.

"The architecture of a DBMS product prevents it from being considered by IS. A traditional DBMS is not going to give you the performance you'd expect to see, and the IS community has come to appreciate the support tools provided in SQL server databases," said Todd Spencer, president of the Great Lakes SQL Server Users Group in Chicago.

Specifically, Spencer said that administrative tools, security, backup-and-recovery capabilities, support for transactions and network performance all favor SQL databases. As such, Spencer said that while products such as FoxPro make excellent front-end query tools for SQL

databases, they are not capable of providing the performance of and tools available in a SQL database.

FoxPro users said Spencer is misguided.

"I'd match the performance of FoxPro against any other database on comparable hardware any day. And while it's true that FoxPro doesn't come with the tools that a SQL database has, they can either be bought as add-ons or programmed in," said Menachem Barzani, a senior associate at Flash Creative Management, Inc., a consultancy in River Edge, N.J.

To illustrate, Goley cited a distributed tanker-tracking application he built with FoxPro for Mobil Oil Corp. that tracks 60 vessels all around the world. Goley said he is able to take advantage of FoxPro's local buffer capabilities and efficient use of network bandwidth to keep multiple servers running FoxPro in sync with one another.

This approach, he said, is significantly more efficient than the distributed update and replication facilities in a SQL database.

"This application was built right after the Exxon Valdez incident, so it has a full audit trail. Originally it was built around a 3950 mainframe and a VAX, but the users sent it back," he said, adding that he delivered that application running on FoxPro for 10% of the cost Mobil incurred to build the same application on the mainframe.

Front ends

While PC-based navigational databases can be used as front ends for SQL databases, relational databases such as Paradox from Borland International, Inc., and Access from Microsoft tend to make better front ends because they share the same record-oriented format as SQL databases.

Addressing the front

To get the ear of IS management in large organizations, Goley suggested that developers initially position products such as FoxPro as front-end prototypes for SQL databases that will be deployed at a later date.

"So the magic word is prototype to get by the first-line issues. Then they'll discover you don't need a SQL database," he said.

Barzani said that while network database management systems may not eliminate the need for SQL server databases, they will dramatically reduce the number of SQL databases in an organization.



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Workgroup Computing

Alliance

CONTINUED FROM PAGE 51

ular architecture, which will take a long time. However, it does help the [alliance] to have an implementation out there to help guide their standardization effort."

A key benefit that 100Base-X offers users is that it is based on Ethernet's media access control method—called carrier-sense multiple access with collision detection—which means customers can migrate to Fast Ethernet technology without any special training. A vendor coalition, led by Hewlett-Packard Co. and AT&T, is proposing a Fast Ethernet standard based on a new media access control method called demand priority, which would replace training and additional cabling [CW, Jan. 11, 1993].

Cabling concerns

The downside to 100Base-X is that it works only with the more expensive, higher-grade Category 5 cabling and not with Category 3, which most users already have in place. The HP strategy, on the other hand, supports Category 3.

This is a major point of contention for Delmarva Power & Light Co. in Newark, Del. "Considering the fact that most of our facility is Category 3 and the high cost of rewiring, Category 5 is not an op-

tion for us," said John Scoggin, supervisor of network operations at the power company. Scoggin said he does not see the need for Fast Ethernet on the desktop until at least 1996. However, if he had to make the transition sooner, he said he would probably go with the HP/AT&T strategy because it would preserve the company's wiring investment.

According to Jack Moore, vice president of marketing at Grand Junction, the alliance plans to support additional media, including Category 3, and users can expect to see more specifications published later this year.

The Grand Junction and HP/AT&T camps have been butting heads for more than a year, and it remains to be seen which strategy will come out on top. "The only hope either vendor has is selling a common adapter at a 50% incremental cost over 10Base-T that has the option to switch to a higher speed," said Paul Callahan, senior analyst of network service at Forrester Research, Inc. in Cambridge, Mass.

In the meantime, Nitchel said there is a good chance the IEEE will adopt both Grand Junction and HP/AT&T's proposals as standards. "The process of ironing out an interoperability standard is very confusing and time-consuming," he said. "The IEEE may decide to adopt both and

leave it up to the market to pick a winner."

Callahan said this was a viable solution to weaning out a standard but added that both technologies face a small market and the scenario would take several years to play out.

On the fence

The prospect of two standards does not appeal to Scoggin. "Someone's going to end up buying the Betamax and someone's going to be buying the VHS, which is a very scary scenario for network managers," he said. "If I spend a lot of money on a new technology, I need to know it will last at least five years."

Until one overall standard emerges, users appear hesitant to seriously consider either Fast Ethernet technology in their LAN migration plans.

"If we decide to go to a higher-speed topology, we'll probably look at CDDI instead because it's been around longer," said Jim Queen, director of enterprise networking at Enron Gas Services Corp. in Houston. Queen said that if Fast Ethernet takes off and the prices drop, Enron would look at it more closely. "However, we absolutely would not implement [Fast Ethernet] unless it did become a standard," he added.



Briefs

VAX-to-Unix port

Proxima Systems Corp. in Toronto, a 35-year-old provider of manufacturing software, is porting its applications from Digital Equipment Corp. VAX systems to Hewlett-Packard Co. HP 9000 Unix servers. Beta versions will be available around mid-1994.

Software driver support

Disk drive manufacturer Microplus Corp. in Chatsworth, Calif., added support for Novell, Inc.'s System Fault Tolerance Level III (SFT III) to the software drivers for its Raidion LP and Raidion LP fault-tolerant disk arrays. SFT III provides NetWare networks with the ability to back up data on a redundant server. Raidware, the software driver that provides the SFT III support, will ship next month for \$60. The company also announced a high-capacity version of Raidion LP for OGL, LAN Server and NetWare 3.1x and 4.x that provides up to 540 bytes of storage. The array is slated to ship this month. Prices start at \$6,450.

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CM

Wang postpones work-flow offering

By Craig Stedman

Wang Laboratories, Inc., which is trying to find a new identity as a software and services vendor, recently said it has postponed commercial shipments of a promised work-flow product to early 1994 in order to build more functionality into the initial release.

Andre Boivert, Wang's vice president of imaging and work-flow product marketing, said the Open/workflow software is now due in the first half of 1994, instead of this year. The delivery schedule "will depend on the feedback we get"

from beta testing that is scheduled to start this month, he noted.

Shipping shape

Open/profound, Wang's document management package, is in beta testing and should begin limited shipments on IBM's RS/6000 systems this month, said Andre Boivert, Wang's vice president of imaging and work-flow product marketing. It is scheduled to become available on Hewlett-Packard Co.'s HP 9000 hardware in 45 days later. It will become generally available during the first quarter of 1994.

Additional features are included.

Wang plans to provide more books than initially planned for integrating Open/workflow with business and imaging applications, Martins said. It also will now support generation of management reports out of the box, instead of just supplying a tool kit for developing that capability, he indicated.

Fine-tuning

Tom Koutopoulos, president of Delphi Consulting Group, Inc. in Boston and one of the analysts Wang brought in, said Open/workflow's icon-based development environment has been ready to ship for at least six months. But he added that the product's end-user interface is "a bit more primitive."

According to Bruce Silver, a vice presi-

dent at HIS Strategic Decisions in Norwell, Mass., who also consulted with Wang, the changes needed in Open/workflow are more of "a fine-tuning than a total overhaul. It's just missing some details that would make people stand up and notice it."

Stephen Jung, director of corporate computer services at Fleishman-Hillard,

Inc., a St. Louis public relations firm that uses Wang's V55 computers, said the Open/workflow delay would not make him shy away from Wang in the wake of the firm's bankruptcy restructuring.

"It would be better for them to wait and ship something that's good," he said.

While noting that revenue could be hurt somewhat, Silver said the change in

schedule was a wise move given the status of Open/workflow and Wang's need to rebuild credibility with users. "Wang's got one chance to get it right, so whatever they put out better be good," he said.

However, Alji Kapoor, a principal at Intelligent Solutions, Inc., a Marshfield, Mass., consultancy, said the delay "is not good news" because Open/workflow is central to Wang's software strategy. "Coming on the heels of Chapter 11, this is the last thing anyone wants to hear."

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LANs strike differing DCE relationships

Systems vendors choose 'best of breed' for servers, clients

By Joanne M. Weder
ROSEMONT, ILL.

IBM recently reiterated its plan to blend the Open Software Foundation's (OSF) Distributed Computing Environment (DCE) services into the next version of its LAN Server network, fueling the question of what role today's network operating systems will play in the DCE world.

DCE is a fledgling set of peer-to-peer computing services from various vendors that have

been integrated by the OSF to allow application and communications portability across disparate systems.

Some network operating systems vendors consider it strategic to incorporate what they deem "best of breed" DCE global directory services, time synchronization, file services, security and other features across their servers and clients.

For example, Bill Conkline, technical product manager at the IBM Personal Software Products group, expressed this view to attendees at a Corporate Association for Microcomputer Professionals (CAMP) meeting here last month, reminding them that the next version of LAN Server, due in the second half of 1994, would incorporate all DCE services.

LAN Server's support of the global directory service holds appeal for Ric Ruttscheld, a distributed data processing manager at Kemper National Insurance Co. in Long Grove, Ill., and a CAMP attendee.

"I want to know how and when X.500 will be supported so I don't have to keep up with domain administration," he said.

The current version of LAN Server, Version 3.0, breaks into domains of up to 1,016 users each.



IBM's Bill Conkline pushed the next version of LAN Server for its DCE qualities



AIX on the way

IBM's Bill Conkline told the CAMP group that LAN Server for IBM's AIX Server of Unix, which runs on the PS/9000 platform, would ship in the next nine to 18 months.

With X.500 support, domains could extend to cities, states or worldwide enterprises, Conkline explained.

Banyan Systems, Inc.'s Vines is also slated to support the full DCE bundle by an unspecified date, Banyan said, but Novell, Inc.'s NetWare and Microsoft Corp.'s Windows NT have less definitive relationships to DCE.

NetWare/DCE link

Conkline asserted that "NetWare doesn't really play in the OSF environment." Indeed, Novell's market-dominating NetWare is slated to link to DCE but will likely integrate just a small subset of its services into its servers, Novell said. This means unsupported services would probably not translate across environments without performance-throttling gateways.

Michael DePaolo, Novell's Unix Systems Group vice president, said at Unix Expo in September that "DCE is not in high demand as it evolves, we'll support it in NetWare and UnixWare, mostly through third parties."

For example, Novell is working with Carnegie Mellon University to build a NetWare gateway that maps NetWare drives into a DCE distributed file system, said Bob Davis, vice president of marketing at the Unix Systems Group.

"There are services we would look to put directly into NetWare, like [remote procedure calls], in partnership with third parties. But this would be driven by customer demand," Davis said.

Microsoft has said it will support DCE with LANs and DCE, page 68

IF, THEN, Q

The role of NetWare and other network operating systems in organizations using DCE will vary depending on user implementation plans. For example:

IF	THEN
YOU WANT TO KEEP EXISTING BUT ADD SOME DCE APPLICATIONS	Maintain two separate environments if no data sharing. If applications are sharing data, the server will need a gateway to DCE file services.
YOU WANT TO INSTALL DCE FOR FULL COMPATIBILITY ONLY	Get applications that support DCE remote procedure calls only. Use gateways for other functions. Do not use software that uses DCE file services, or you will need a NetWare-to-DCE gateway.
YOU WANT TO USE DCE FOR ACCESS TO ALL DISTRIBUTED COMPUTING SERVICES	Dump your network operating system, NetWare or otherwise.

Source: OMI Corp., Westport, N.J.

Client/server

Single sign-on nears OK

By Elisabeth Horvitz
BOSTON

A team of determined corporate users and leading vendors can make real progress toward addressing the more stubborn aspects of multivendor client/server computing, as shown by work at the recent Open User Requirements Solutions (OURS) meeting here. One top priority work item: coming up with consistent user sign-on protocols for better security management.

The vendor contingent seemed almost as excited as the users about the results of the meeting: "OURS provides to vendors a setting where a number of users debate and synthesize and, in the end, document sets of requirements for interoperability issues,"

Single sign-on, page 68

Building IS from the ground up

By Joanne M. Weder
CHICAGO

The wielding of technology as a competitive weapon has been discovered by the trade show industry, where exhibition centers are growing bigger and network-ready to woo high-paying exhibitors.

Wittacore, for example, an in-progress revamp at the revered McCormick Place exhibition hall here, where three years ago "there was simply no IS at all," said Bernard J. Dudek, director of management information services.

Since then, however, the center has expanded to 280 LAN-connected PCs spanning four buildings. They serve internal users.

But an internal infrastructure is only the beginning: The center—administered by the Metropolitan Pier and Exposition Authority (MPEA)—is now looking to market data services to exhibitors. To that end, it has begun ripping down walls, expanding skyward and outfitting itself with the latest in data delivery technology such as fiber cabling and high-end wiring bays.

One goal is to attract the big, data-intensive exhibitors, such as the Radiological Society of North America (RSNA), which will exhibit at McCormick Place late this month. Building networking—especially fiber facilities—is important to the RSNA because this year will be the first time it networks its exhibitors on the show floor, said Steven T. Drew, director of informatics at the RSNA in Oak Brook, Ill.

Building IS, page 70



McCormick Place's Kent Worell: Looking to consolidate resources and show leather by consolidating resources

ON SITE

Metropolitan Pier and Exposition Authority
Chicago

Goal: To create a large, secure, ready convention center that attracts foreign and domestic exhibitors.

Technology: Fiber-optic cabling, private high-end "colored backbone" hubs and routers, AS/400 host and file controllers.

Benefits: Infrastructure that allows network-oriented exhibitors to exchange data and images on show floor.

Single sign-on

CONTINUED FROM PAGE 45

said John Worthen, president and chief executive officer at Mergent International, Inc., a security software firm in Rocky Hill, Conn.

At the meeting, the OURS data security task force reported good progress in getting key vendors to provide standardized user sign-in

The big advantage that this task force provides over typical standards bodies is that it seems to be getting on real, commercially viable solutions to real problems in a short time frame. Worthen said. "It's easy to sit down with your competitors and talk about what the world will be like in five years; [it's] difficult when you are talking about deliverables in a few months. OURS is about that."

The task force began by "assessing what technology is available today" and developing a matrix of user security needs, Worthen said. They then identified vendors that provide parts of that matrix and began "nudging vendors" to enhance their products to fill in the outstanding gaps in the matrix. Its latest move has been for the user members to address "the vendors in the room, saying, 'Hey, you have a good Unix product. You have a good SNA product. Why not talk to each other?' It's a great breeding ground for cooperation," Worthen said.

For example, Mergent is now co-operating with rival ICL to provide a broader solution set to customers, Worthen said. Mergent specializes in security products for DOS, OS/2, Windows and Novell, Inc. platforms. ICL, in Unix and dumb IBM terminals.

The group is working on a brochure to help vendors implement standardized security, Jarocki said. "The vendors will listen to us," he said, partly because key vendors, such as Novell, attended the meeting and primarily because the task force includes such heavy-hitting customers as American Airlines, Citibank, American Express Co., The Chase Manhattan Bank NA and Chemical Bank Corp.

Mergent initially got involved in the security task force at the urging of some of its major customers, Worthen said.

The group hopes to complete initial objectives for a single sign-on standard in the first half of next year, Worthen said.

On the group's agenda for the OURS meeting in April 1994 is coming up with a standardized way for network management platforms to manage security implementations across heterogeneous networks. The group will work in tandem with the OURS network management task force to ensure that the two groups do not wind up with divergent solutions to overlapping problems, Jarocki said.

Maxm automates management

By Lynda Radosevich

Maxm Systems Corp. in Vienna, Va., recently added increased automation capabilities to its network management integration software.

The Maxm software integrates network management systems from mainframes, mid-range, wide-area network, LAN and voice platforms. This distinguishes Maxm from leading management vendors that focus on providing software to manage a limited range of systems, according to company president Jack Reis.

The integration software allows users to manage all computing and communications devices from one workstation and add automation routines that cut down on the amount of network manager intervention. In turn, that allows customers to reduce their network management head count by 50%, Reis said.

"That's possible," said Jeremy Frank, vice president of networked systems management services at Gartner Group, Inc. in Stamford, Conn. The ability to deploy client/server systems is well ahead of the ability to manage it, Frank said. "60% to 80% of all new client/server deployments fail to deliver on their promises, mostly because they aren't managed well."

Maxm offers a tactical approach to integrating management of physical networking devices. Strategic solutions that also manage applications are still three to four years down the road, Frank said.

The Maxm software picks up data streams from the managed devices, interprets the protocol (such as Simple Network Management Protocol and Common Management Information Protocol), and translates the information into a standard format. The software can then filter out information that does not require any action, such as messages indicating that a device will be offline. It can also store information for reports and invoke automatic routines, such as resetting a device.

New features

The latest release adds IBM's Rexx scripting language to both the client and server Maxm portions. Rexx allows network managers to write automation routines that can automatically initiate actions via IBM's NetView family of network management systems. Maxm interacts with NetView, thereby saving on network operator intervention.

Also, the new release increases the level of operator authorization, so users can specify a high-level operator that only receives high-level problems, for example.

Maxm is a privately held company with approximately 70 employees. One of the company's strengths is that IBM picked Maxm as a strategic business partner, Frank said. Other competitors in this niche market include Boscio and Babbage, Inc. in Sunnyvale, Calif.; Objective Systems Integrators in Potomac, Calif.; and Nymex Allint Co. in White Plains, N.Y.

OURS lists voices and their charters

WHAT WORKS WITH WHAT

Improve interoperability among multifunction terminals and products

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Reduce user requirements for network and systems management and hard to maintain

SOFTWARE LICENSING

Reduce the number of licenses and ensure that software solutions licensing models exist and are based on methods of value pricing

MULTIVENDOR EDUCATION

Provide a common information skills and map for IT managers to ensure in client/server education

DATA SECURITY

Identify single sign-on scenarios and produce mutually agreed-upon guidelines to standardize, multi-vendor compatible environments

procedures across a variety of network, server and workstation environments. This is a major issue, particularly for financial services firms that want to administer security across heterogeneous client/server networks, said Stan Jarocki, vice president and director in corporate audit at Citibank NA and a co-chairman of the task force. "That's the real killer."

Cooperation works

The meeting was "the most exciting we've had so far" because so many powerful users and vendors were working together to define a cohesive set of requirements for single sign-on across different platforms, Jarocki said. For example, the group concluded that it had to come up with a methodology, such as key-based password, to ensure that the sign-on procedure itself is secured, he added.

"And we brought up the question of how you traverse from one system to another [for example if I'm on Novell and I want to talk to HP or IBM, how do you put me on the network with a security server]."

The answer the group is now formulating with the help of key vendors is a standardized security application programming interface that all of the important products would ideally support. The result would be a standardized way for a server or gateway to translate the passwords created on one system into the format understood by another, Jarocki said.

Network General extends LAN analysis

By Elisabeth Horvitt

Network General Corp.'s Distributed Sniffer System can now monitor and diagnose traffic across multiple Ethernet segments that are attached to Alantec's Powerhub line of intelligent hubs, the two vendors announced last week.

The Sniffer, or any LAN analyzer for that matter, can monitor any Ethernet segment attached to an Alantec Powerhub by working with Alantec's Port Monitoring feature, the San Jose, Calif., hub vendor said.

Port Monitoring dedicates one of 12 Ethernet segments on the hub for receiving traffic from all other segments; the traffic is then collected for analysis by a Distributed Sniffer Server.

Powerhub can also collect Filter Distributed Data Interface frames for viewing by Sniffer, an Alantec spokesman said.

This allows users to monitor multiple LAN segments from one Sniffer console, without the need to move a portable Sniffer from one segment to the next or install a Sniffer Server at each segment, the vendors said.

The Distributed Sniffer Server is priced at \$7,495. Also required is a Sniffer console, priced at \$4,995, Network General said.

Powerhubs are priced at \$9,950 to \$27,950, with the Port Monitoring feature thrown in, Alantec said.

Network General already has an alliance with 3Com Corp. to monitor 3Com hubs via Sniffer and the Remote Monitoring standard. Other alliances are in the works, a Network General spokesman said.

LANs and DCE

CONTINUED FROM PAGE 66

its Windows NT-based distributed architecture, Cntrl. Also with a charter to support Unix, Posix and DOS shells, "NT will support DCE by matter of course," said Tom Nolle, president of CBI Corp. a Voorhees, N.J., consultancy.

Meanwhile, IBM's LAN Server can share resources with NetWare through looking LAN Server, Requester and NetWare Requester on the same OS/2 machine and allowing different device drivers to give the user access to either platform.

But in the DCE world, users "might have to separately log on to NetWare, NT and the DCE network," Conklin said. This would run contrary to the concept of DCE, which is to cost over heterogeneous systems with common interfaces to create one look and feel for the user.

Users' choice

However, depending on how well DCE files and what users decide to do with their existing LAN applications, this might not be a big deal, Nolle said. Some companies, for example, might keep their NetWare and DCE environments separate.

Conklin said he is "not sure" yet whether the DCE services to Version 4.0 will be embedded in the IBM OS/2 operating system, off of which LAN Server runs, or in a separate application. Embedded in OS/2, it "would be more accessible for developers but would take up unnecessary resources for OS/2 users not interested in DCE," Nolle said.

If DCE were in a separate LAN Server application "then those users affected are only those who have elected to use it," he noted.

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COMPAQ

Building IS

CONTINUED FROM PAGE 65

Fifty to 100 of ISNA's 600 exhibitors will exchange bandwidth-devouring applications that combine digital images with associated medical information over different vendors' radiological equipment. This will be the first demonstration of a new medical equipment networking standard, Digital Imaging and Communications in Medicine, Drew said.

Drew, who is collaborating with McCormick Place on its fiber installations in what will be the exhibition hall's first



McCormick's Remand Dudek: Hopes to attract exhibitors with a network-ready convention center

outside support project, said it is important to him that an exhibition hall have built-in fiber to circumvent the 100-meter distance limitations of unshielded copper so exhibitors in the farthest corners can join the network.

To accommodate exhibitors, McCormick Place is immersed in a four-year project that includes the construction of a five-story building housing an extra 2 million sq. ft. of exhibit and meeting space. Fiber links are slated to run within and between buildings in the 3-mile-radius complex—moves that "parallel expansion by other convention centers," Dudek said.

The project will also see McCormick Place following a network trend to collapse many communications functions into one or a few pieces of equipment in a centralized spot that looks strangely like a data center.

The cost factor

One reason this scheme is drawing interest in that it is costly to disperse servers, wiring hubs and other equipment throughout a large distributed enterprise, said Kent Worrell, information center manager at McCormick Place. He said, for example, that he is running multiple hubs, servers and copies of Novell, Inc.'s NetWare that are underused but needed because the users are too far apart to share resources.

And as a municipal entity, he indicated MPEA does not have taxpayers' money to burn.

His cure could eventually include running SynOptics Communications, Inc.'s recently announced System 3000 smart "hub of hubs" (CW, Sept. 27), which aggregates corporatewide traffic. Combined with fiber cabling, which stretches user-connection distances far beyond what copper cabling can do, the 3000 could allow Worrell to link the geographically dispersed users back to it directly.

He estimated that he could cut the price of his 37 wiring closets, some of which only feed the show floor, down

from a ballpark figure of \$50,000 to \$15,000 by not replicating servers and Wellfleet Communications, Inc. routers in every closet. A high-end, traffic-aggregating Wellfleet Backbone Node router plugged into the System 3000 could be in order, he said.

System 3000 shortcomings

Today, MPEA runs about 26 distributed SynOptics System 3000 wiring hubs "when I could probably get away with two" if matching the number of hub ports to the user body count, Worrell said. This is an issue for many System 3000 hub users today, said Val Sribaz, program director at Meta Group, Inc. in Westport, Conn. System 3000 modules contain one fiber connection on a 12-port card; users come into the hub over a fiber link and then attach to just one or two resources, such as a server, over copper.

"You end up burning a 12-port card to use just a couple ports," Sribaz explained.

The System 3000 design is intended to remedy this situation. It supports more modules with a fiber link and just four copper ports so that each module is more likely to be fully used.

Software first

MPEA's applications philosophy is to buy off-the-shelf software as often as possible and let the product drive the platform, said Peter J. Dudek, director of management information services.

He indicated that potential interoperability issues among platforms would likely be less of a headache than installing software that doesn't fit the bill.

So far, that thinking has meant installing an IBM AS/400 D60—soon to be upgraded to an F70—to run Denver-based J. D. Edwards' financial package, customized for exhibit booth-by-booth work orders. Particularly, an AS/400-based package also administers McCormick Place's internal event management, though a Unix application was a decision finalist.

For interoperability with the AS/400, MPEA largely uses Novell's NetWare for SAA gateway to accommodate managers with PCs. "It's good for terminal emulation, but printing is a problem," said Kent Worrell, information center manager. The AS/400 "really wants" to talk to its own 3250 terminals.

So MPEA uses a controller from Ikon in Billerica, Mass., to hook a remote dumb printer and a few 3250 terminals into the host, Worrell said. Ikon's Concert product was one of the original products to fill this interoperability gap, though Worrell pointed out that IBM now makes a similar product.

—Joanna M. Wozniak

"HE'S IN A MEETING."

"SHE ONLY DROVE IT TO CHURCH ON SUNDAYS."

Cellular carriers gain new fraud-detection weapon

By Ellis Booker and James Daly

Estimates put U.S. telecommunications fraud at around \$4 billion annually, with fraud on cellular networks alone accounting for between \$865 million and \$600 million each year.

Recently, however, a handful of cellular carriers have deployed knowledge-based systems to help thwart this odious misuse of their networks. While initially focusing on voice communications, the technologies eventually may help secure wireless data transmissions.

"None of us would ever leave a confidential memo lying on a restaurant table, but then we don't think twice about transmitting data electronically without a safeguard," said Bob Geisler, a senior consultant at COT, Inc., a consulting company in Minneapolis.

One of the new products, FraudBuster, a workstation-based system from Coral Systems, Inc. in Longmont, Colo., watches the calling behavior of users over a period of time and can issue alerts when the calling pattern of an individual subscriber starts to appear suspicious.

FraudBuster accomplishes this with a neural network "inference engine" from Neuron Data, Inc. in Palo Alto, Calif. Neuron Objects is "the heart of the system," said Mark Handzel, Coral vice president of development, about Neuron Data's expert system development tool. "The [artificial intelligence] engine analyzes all the multiple levels of alerts and events and decides whether to generate a yellow or a red condition."

The true value of the artificial intelligence engine is that it winnows down possible suspects to a manageable few, Handzel said.

First customers

So far, FraudBuster has been officially deployed with a cellular carrier in Puerto Rico; it has also been installed in several large Bell company cellular networks, according to Coral.

"The approach does appear to be promising," said John J. Haugh, chairman of Telecommunications Advisers, Inc., a Portland, Ore., consultancy that specializes in preventing telecommunications fraud. "Whether it truly represents a breakthrough will depend on further testing and market acceptance."

Haugh, who estimated that cellular fraud worldwide surpasses \$1 billion per year, is heartened by the fact that cellular carriers are "finally beginning to take the problem seriously." He said the industry is now investing in hardware and software innovations that promise to get

the situation under control—at least domestically.

According to Coral, the Neuron Data inference engine in FraudBuster can build a customer's profile in as little as two weeks—although 40 days is normally allocated to this process.

Further scrutiny

Additional security efforts are under way at PacTel Cellular in Los Angeles, which is conducting a pilot project. ESL, Inc., a subsidiary of Cleveland-based TRW, Inc., is testing an electronic system that tracks, identifies and blocks calls that people make using stolen telephone access numbers.

The TRW system determines the legitimacy of a call by comparing the unique signal frequency patterns of the device making the call with the patterns on record for that transmission device. Although this early phase of testing for the PhonePrint system is not targeted at the mobile PC, TRW Program Director Jeff Phillips said the technology could be extended into this area.

Phillips estimated that the PhonePrint network access controller system will conclude its test with PacTel Cellular early next year, and the services will then be made available to cellular carriers nationwide.

Cellular technology is seen as the next information highway for mobile computers. Spectram Information Technologies, Inc. in Manhattan, N.Y., for instance, offers a technology that allows portable computers to transmit data via cellular telephone networks. Such total mobility is crucial to the adoption of personal digital assistants such as Apple Computer, Inc.'s Newton. Casio, Inc.'s Z-7000 and Eo, Inc.'s 440.

The use of wireless data transmission technology has security managers worried about the potential for abuse. "To tell you the truth, it makes me a little jump," said Brian Butler, director of security and operations at National Securities Clearing Corp. in New York.

How safe is wireless? That depends. "Wireless technology is not inherently more dangerous than land-line networking, but you do have to play by a slightly different set of rules," said Ira Brodsky, president of Datacom Research Co. in Wilmette, Ill.

Ultimately, wireless security awareness must be emphasized at the end-user level. Data encryption, at the very least, should be the first line of defense. "As we distribute the resources, we distribute the responsibility," said Fritz Wagner, manager of corporate electronic information security at Du Pont Co. "The IS guys can't do it all."

"I READ IT FOR THE ARTICLES."

"IT CAN BUILD ANY MISSION-CRITICAL, CLIENT/SERVER APPLICATION."

Enterprise Networking

CHI/COR Information Management, Inc. has announced TRPS Express, a Windows-based front end for the company's Total Recovery Planning System (TRPS), a DOS-based recovery planning tool.

According to the Chicago company, the product allows network recovery plan-

ners to take advantage of the same industry standard relational database planning format as its TRPS.

TRPS Express features an on-line recovery planning methodology that explains recovery planning concepts and principles to the network planner in common management terms.

The product also includes a network topology section, an imaging facility and action icons.

TRPS Express is available at an intro-

ductory price of \$7,995 for a single-user license.

► **CHI/COR Information Management**
(312) 352-9160

NetStor, Inc. has introduced automated storage management software for Hewlett-Packard Co.'s HP 9000 systems running HP/UX.

The software includes Hierarchical Storage Management (HSM) software

and optional Network (remote) Migration.

According to the Minneapolis company, the HSM software provides full-featured network storage management with automatic file migration, high-speed backup and library management. Automatic file migration between a remote client and the HSM server is provided by Network Migration.

Prices for the HSM software start at \$7,500.

► **NetStor**
(612) 690-6135

Digital Communications Associates, Inc. has introduced Crosstalk for Macintosh, asynchronous communications software for the Macintosh environment.

According to the Alpharetta, Ga., company, Crosstalk for Macintosh offers a comprehensive set of terminal-emulation and file-transfer protocols.

The product offers full support of Apple Computer, Inc.'s Comm Toolbox standard for connection, file transfer and terminal tools. It also provides cross-platform compatibility to ensure script, QuickPad and keyboard files, in addition to a user interface capability between environments.

The product also includes a built-in text editor.

Crosstalk for Macintosh 2.0 costs \$195.

► **Digital Communications Associates**
(404) 442-6364

MagicRAM, Inc. has introduced the Mercury Card, a voice/fax/modem card based on the PCMCIA 2.0 standard.

The modem was designed to be used for notebook, palmtop and pen-based computers.

The Mercury Card has the ability to integrate voice with applications, providing voice annotations of documents, voice electronic mail, multimedia presentations, remote access of personal voice and fax messages, phone mail and fax-back.

The product operates at speeds of up to 2,400 bit/sec. and can be used in PCMCIA Type II or Type III slots.

To conserve the battery life of portable systems, the Mercury Card also has a sleep mode and wake-up feature. It is available with voice-enabling software that supports either Windows or DOS environments.

The Mercury Card has an introductory price of \$245.

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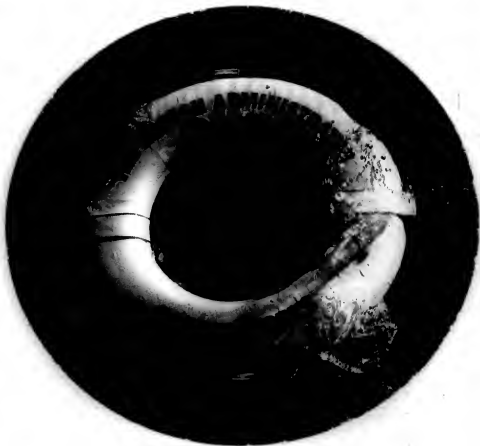
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Large Systems

HP ADDRESSES UNIX
MIGRATION, 80
NEW PRODUCTS, 85

Experts urge more 'super' in U.S. supers Government called to head project

By Gary H. Anthes
WASHINGTON

A panel of experts from industry, government and academia has called on the federal government to spearhead development of a \$50 million supercomputer able to work at 1 trillion floating-point operations per second (TFLOPS).

The panel, which recently completed a study on high-performance computing for the National Science Foundation (NSF), recommended that the NSF lead the initiative, augmenting in some unspecified way an ongoing effort by the Advanced Research Projects Agency to develop a massively parallel TFLOPS computer by the mid-1990s.

The effort would involve multiple government agencies and the private sector. Started in 1985 or 1986, it could progress, *Superscomputers, page 84*

Systems futures

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- ▶ \$50,000 WORKSTATIONS WILL COMPUTE AT 1 GFLOPS.
- ▶ HIGH-END PCs WILL COST \$30,000 AND PERFORM AT 200 MFLOPS.

Source: National Science Foundation, Washington

Road to automation bumpy

By Johanna Ambrosio

Too many products without a coherent strategy behind them can almost do more harm than good when it comes time to automate the data center; many implementors agree.

Don Senker, manager of strategic services at Disney Worldwide Services, Inc. in Lake Buena Vista, Fla., found this to be the case in his shop a couple of years back.

"We had automation everywhere. It was a real hodgepodge, out of control. We had all the tools we needed, but no one was responsible for it all," he said.

But then Senker's team took some time to look at the whole process and figure out what they were trying to accomplish. The result has been a companywide automation initiative that does more than reduce data center headcount and suppress the majority of console messages. Although these goals have certainly been reached, the real benefit has been improved service to end users by the company's having a better handle on what is going on underneath the machine covers.

No cohesive approach

Unfortunately, as Disney and other large companies have found, the path to providing better service through automation is often a bumpy road filled with fits and starts. Products are brought in

willily-ally to solve problems in various parts of the information technology organization, but groups may use the same product in different ways or use the products to measure and control different aspects of the problem.

For example, the people who might tend to one MVS subsystem are a different group than those who are charged with looking after

Even when the automation process begins. It can be rocky. Most companies start with products to suppress the never-ending stream of messages that operators have to wade through to determine if anything is going wrong inside the mainframe. These products are generally justified to upper management on the basis that if there are fewer messages to sort, fewer operators will be needed.

One thing at a time

Only when these products have met their targets are other pieces of the automation pie then brought in — to automatically start jobs that must begin each day at the same time, for example. As these other tasks are attached, there may be different people or different kinds of computers from when the automation project first began, and the willy-nilly mix of products begins to erode.

"We'd be a lot further along if we had more help," said the operations manager at a Midwest health care facility. "If you're not eliminating people or CPUs, it's hard to get the commitment."

As large shops have proved, however, it is possible to organize an automation effort. The Tennessee Valley Authority in Chattanooga put together a cross-functional team of about 10 people after having already installed a homegrown

Automation, page 84



the CICS transaction processing monitor.

These groups have not always communicated with one another, and it is possible they may use a different tool set to accomplish essentially the same job.

Then, too, data centers have suffered from the shoemaker's children syndrome. Although they work around computers, data center people have usually been the last to actually use computers to automate pieces of their jobs. Getting the funding, management commitment and resources in place to do this has not always been easy.

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SAP users turn to host version for transition

By Jean S. Borman
SAN DIEGO

SAP America, Inc.'s R/3 packaged software applications for open systems are beginning to roll into corporate America, with 40 licenses installed since the product was introduced in North America last year. But users from several multibillion dollar U.S. firms at the Sapphire user group meeting here said they recently purchased the oldest, mainframe-based R/2 package to replace legacy software and are running only pilot projects on the Unix-based R/3.

Some users said they are waiting for R/3 to gain more functionality and to become comparable in scope to the R/2 product suite. Use of the R/3 product is more widespread in Europe, where SAP AG is based in Walldorf, Germany. There are 4,300 copies of R/2 worldwide and 700 copies of R/3, SAP said. So far, only four North American sites are running R/3 code in production, the company said.

In the works

SAP's R/3 Release 2.1, with new manufacturing modules and enhanced support for client/server GUIs, will ship by year's end.

A joint development agreement with Sun Microsystems Computer Corp. to support for Sun's SPARC-based hardware and Solaris operating system.

R/3 port to Microsoft Corp.'s Windows NT to ship in March 1994; SAP and Microsoft releases on OLE to-based client-server applications.

and project-planning modules, is set to ship by year's end (see box). But multinational companies that need financial statements in several languages and currencies said they simply cannot wait.

Goodbye Tire & Rubber Co. assistant controller Joe Gilchrist said he is buying R/2 as a replacement for aging mainframe applications to run the \$11.7 billion company and is planning to evaluate R/3 for later use. SAP said a coexistence and migration strategy is under way for R/2 and R/3.

Generally, large SAP users report that their move to packaged applications is driven by a need to reduce information systems costs, replace aging mainframe systems and re-engineer outdated business processes at the same time.

"We decided that we were going to have to change our legacy systems, some of which have been with us for 25 years," said Jack Spurgeon, vice president and director of Systems and Computer Services division at \$3.9 billion Eastman Chemical Co., an Eastman Kodak Co. spin-off in Kingsport, Tenn. The firm will

install R/2 software on its mainframe "enterprise server" at headquarters and try R/3 for selected international applications.

"We're going to bring up a human resources module of SAP R/3 for decision support in the international arena," Spurgeon said. "It will help us better un-

derstand how R/2 and R/3 coexist together." R/3 will run on Digital Equipment Corp. Alpha machines on top of Oracle Corp. databases, he said.

Convex Computer Corp. in Richardson, Texas, is one of the production R/3 sites. It is running "vanilla" SAP financial packages without change on Hew-

lett-Packard Co. Unix machines, said Doyle T. Baker, director of information resources. However, Baker said he is also using SAP's Abap/4 tool kit to write code that links the SAP R/3 modules to legacy applications.

Baker said Convex is running R/3 Release 2.1 on page 79

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Large Systems

lease 1.2 applications and that he already has plans to put R/3 Release 2.0 online by year's end.

Chevron Corp., with \$40 billion in annual sales, is one of the largest firms planning to move to R/3 on a corporate-wide basis. Chevron is launching a pilot program for Wierren Petroleum, a \$1.6-billion subsidiary in Tulsa, Okla., that would run R/3 on HP 9000 Unix servers.

If successful, the financial system will be duplicated across the corporation, ac-

cording to James R. Zell, project manager of Chevron's Advanced Financial Information Systems group in San Ramon, Calif.

Change means savings

"Our goal is to save \$25 million a year by changing the business process and installing vendor-supplied software," Zell said. All told, the project to replace Chevron's 30-year-old financial applications may cost \$80 million over five years.

The \$532 million SAP AG has about \$60 million in North American sales, and analysts said it is well-positioned in the open systems application software market because multinational firms may know about SAP AG from their European operations.

"SAP's connection to the chief financial officer community gives it a bit of a lead," said Tom Willmott, a vice president at Aberdeen Group in Boston. "But they're struggling to get R/3 stabilized

and in production volumes."

Rival Oracle's Financials applications suite generates about \$150 million in revenue, including the use of Oracle consulting services, according to Gartner Group, Inc. analyst John Borelli.

In contrast, SAP, which has a North American division with headquarters in Philadelphia, partners with consulting firms, including Coopers & Lybrand, Andersen Consulting and Price Waterhouse.

SAP, SAP must compete with mainframe software mainstay Dun & Bradstreet Software, which is revamping its products for open systems, and PeopleSoft, Inc., which last week announced new client/server-based financial applications software.

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Galileo merger/move complete

By Ellie Bookner

Last month one of the world's largest databases, Galileo International's computerized reservation system (CRS), moved electronically from a data center in Swindon, England, to Denver.

The data transmission was the final leg in the consolidation of the Apollo and Gemini CRS systems. Last March, Corvus Corp., the former United Air Lines unit in Rosemont, Ill., that developed United's Apollo CRS, and UK-based Galileo, the CRS owned by a consortium of European carriers, agreed to merge to form Galileo International.

Moving the data across the Atlantic involved six months of planning, two dress rehearsals and nearly 1,000 tapes' worth of download data, according to Galileo, which issued a report on the event earlier this month.

In addition, the Galileo network, which supports about 25,000 travel agency terminals, was redirected to Denver from Swindon. The process took 41 hours.

The 334G-byte database includes 2.25 million passenger files.

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HP addresses user migration to Unix

Explores the option of porting Image to the HP 9000

By Mark Halper

PAULO ALTO, CALIF.

With stalwart Hewlett-Packard Co. customers taking a Unix path. It is not surprising that HP is deciding whether to port its proprietary Image/SQL database for the HP 9000 minicomputer to its Unix-based HP 9000.

Giant HP 9000 shops such as Northern Telecom, Inc. and Minnesota Mining & Manufacturing, which operates 150 of the venerable HP 9000s, have declared a long-term goal of migrating to Unix, and there is no guarantee their migration paths will keep them on an HP road.

Users and analysts agreed that if HP were to offer these users the option of walking their database applications from the HP 9000 over to the HP 9000, HP would increase the chance of retaining them as customers, provided the users do not plan to abandon the relatively hierarchical Image/SQL for a more relational engine.

HP is circulating a survey that asks users, among other questions, whether they would like to run Image on the HP 9000 (ENR, Sept. 27).

Holly Chapman, director of MIS at mail-order retailer The Hamilton Collection Ltd. in Jacksonville, Fla., said that if she had a Unix Image alternative three years ago, she may have decided to remain with HP rather than switch to a

Sun Microsystems, Inc. platform for the company's order-entry and marketing systems.

"By moving, we were basically throwing away 10 years' worth of software," Chapman said. "If there had been the option, I would've liked to have said it to my boss."

As is the case with many Unix migration decisions, Hamilton's move to Unix was not decided by the information systems shop, Chapman said. It was mandated by a top Hamilton executive who wanted the company to move toward open systems.

Dave Wilde, information management program manager at HP, said HP is monitoring the possibility that Image's lack of availability on the HP 9000 instigated some defections. It is too early to determine survey results, he noted.

Understands the reasoning
One large manufacturing company, like any prudent IS group moving to Unix, plans to shop the Unix market, according to one of the company's database analysts.

In this case, Image is out in question because the company plans to move to a relational database. Nonetheless, the analyst saw the wisdom of HP's offering Image for the HP 9000.

"There's probably a number of people who would like to do that, but that would be more of a tactical move than a strategic one for them," he said. While the move would spare his shop the money and effort of porting Image applications to the HP 9000, it would not provide the strategic client-server direction that his company has deemed appropriate for its business future.

Birkett Foster, president of M. R. Foster Associates Ltd., a Chesterville, Ontario-based vendor of desktop integration tools, noted that offering Image for the

HP 9000 would be a potential boon to HP.

"The fastest way to make the transition easy is to offer them Image on a different box, so they don't have to do a conversion," he said. "Otherwise, they could end up on something else, like a Sun."

IVI Travel, Inc. in Northbrook, Ill., is another longtime HP 9000 shop converting much of its operations to Unix.

Manager of MIS operations Jerry Kopecy noted that he will not be waiting for Image on the HP 9000. IVI Travel is installing Informix for its Unix machines, he said.

The Belgian waffle

Hewlett-Packard may be eyeing scaling over whether to offer Image for the HP 9000, but if it decides to take porting action, it already has a development effort by a Wilkes-Barre, Belgium-based equity partner.

Three years ago, Denkart (NV), a vendor of tools for the HP 9000 and HP 9000 that is 25% owned by HP, developed a version of HP 9000 Image for the HP 9000 with HP.

But for reasons that sources said they believe have as much to do with political sensitivities as with HP and Denkart's stated explanation — performance shortcomings — HP and Denkart decided not to market the product.

Neither HP nor Denkart will confirm it, but HP is believed to have shelved the product because of the meager return of investment earning through the HP 9000 community at the time.

HP 9000 users were revelling over

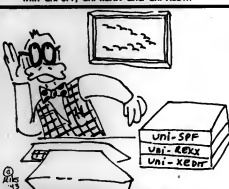
signs that HP was abandoning the machine and its MIP operating system in favor of Unix; porting the machine's database to the HP 9000 would have further fueled their anger, which has since diminished with subsequent HP 9000 commitments from HP.

Dave Wilde, information management program manager at HP, said that when Denkart developed the product, HP determined there was not a demand for it and that too much money and work would be required to bring performance up to acceptable levels. Among its shortcomings at the time, Image for the HP 9000 lacked a transaction manager, he said.

Denkart general manager Guido Van Brumpt estimated that it would take about three months of development to finish the project. The process would entail supporting many of the changes that HP has made to Image in the three years since Denkart stopped work on the project.

—Mark Halper

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Briefs

Unsys wins \$68M pact

Unsys Corp. will be handling the state of Florida's Health-Care Administration's Medical processing under an \$61 million, 60-month contract.

Wang hires imaging exec

Wang Laboratories, Inc. hired Andre Boivert, a former IBM, Cognos Corp. and Syntex, Inc. executive, as vice president of imaging and workflow product marketing.

Nasdaq trades mainframes

The Nasdaq Stock Market, Inc. is replacing its Unisys mainframes with newer models. The exchange has signed a five-year, \$25 million contract with Unisys for two 2200/900 systems and services designed to sup-

port the stock market's 800 million-share daily trading volume.

The mainframes, which will be installed next year at Nasdaq's primary data center in Trumbull, Conn., and its backup data center in Rockville, Md., will replace Unisys 1100/90 mainframes. They will be linked to one another over T1 connections.

NCR support moves

NCR Corp. has established a Customer Focused Business Model designed to provide specific customers with teams of NCR support staffers. As part of the model, NCR named Bill O'Shea, currently senior vice president of NCR's Network and Integrated Systems unit, to senior vice president of worldwide marketing. Tom May, a senior vice president of the General Purpose Products Group, has been appointed senior vice president of products and systems.



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PLATINUM
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Automation

CONTINUED FROM PAGE 77

message suppression system.

The people came from technical services, production management and computer operations, among other various areas.

The Church of Jesus Christ, Latter Day Saints in Salt Lake City has also expanded

its operations scope as the fly. A few months ago, a cross-functional team started going out into the business units to help end users use automation more effectively. The team helps end users identify and implement projects.

"We've been doing automatinn for about seven years, from the production and operations sides," said Russ Duncan, information utility consultant for the church. "Now we've broadened it to involve the users."

These cross-functional teams will become even more important in the future, users said.

The next big frontier in operations, to become technologically possible within three years, is to manage operations by application instead of by the technical subsystems involved.

In other words, the operations staff will look at a general ledger or a human resources system to find out how well it is functioning or to fix it if something

goes awry. "We're moving to the ability to manage by application," said James Spangler, computer operations manager at United Parcel Service, Inc. in Mahwah, N.J. "We need to take input from all kinds of different sources to find out how an end-user application is doing."

That will require the ability to tie together operations products from different vendors, as well as the cross-training of data-center technicians in each others' areas.

Supercomputers

CONTINUED FROM PAGE 77

done in two years a "nationally shared" supercomputer with a price tag of \$50 per TLOPS, plus a similar cost for development, the panel said.

The machine would be used by federal agencies, universities and industry on a broad range of scientific applications.

The report, "From Desktop to Teraflop: Exploiting the U.S. Lead in High Performance Computing," did not lay out a detailed blueprint for action.

"The committee thinks of this as a vision; implementation is an open question," said Marye Anne Fox, a member of the NSF's National Science Board, which commissioned the study.

The report also did not address concerns raised several months ago in a report by the Congressional Budget Office.

The budget office report said the government's high-performance computing and communications program — in which the NSF is a key player — is focusing too much on supercomputer technology and has overly optimistic hopes for massively parallel computers [CW, July 12].

A footnote in the report said some members of the panel dissented from the TLOPS computer plan, revealing they "have reservations about the urgency of the recommendation, are pessimistic about the likelihood of realizing the [planned] effective performance in applications or are concerned about the possible opportunity cost to NSF of such a large project."

Some new ideas

The panel also recommended that the NSF do the following:

- Take the lead, under White House direction and in cooperation with other agencies, to expand access to high-performance computing by all sectors of the country.

- Double its current level of annual investment — \$22 million in workstations — for its 20,000 funded researchers.

- Boost funding for experimental parallel processing technologies such as distributed file systems and message-passing operating systems needed to harness after-hours idle capacity in arrays of PCs and workstations.

- Devote increased effort to systems software, algorithms, models and computational strategies to wring better real performance from high-performance computers, especially parallel systems.

"Now, tell me about client



Large Systems

Sybase, Inc. has announced SQL Monitor Release 10, a software tool designed for distributed client/server database performance monitoring and tuning.

According to the Emeryville, Calif., company, SQL Monitor gives companies mainframe-like control over the system performance of their SQL Server-based

distributed database environments.

SQL Monitor consists of SQL Monitor Server, which accesses SQL Server shared memory as a background task to capture SQL Server performance statistics; and SQL Monitor Client, which connects to the SQL Monitor Server and displays performance data via a graphical user interface.

SQL Monitor Server prices start at \$2,380 for an unlimited-user Unix system; the license. SQL Monitor Client starts at \$595

for a single-user Windows 3.1 license and at \$1,990 for a single-user Unix system license.

► Sybase
(610) 696-3500

Sterling Software, Inc. has introduced Same:Automate Release 3.1, an IBM MVS storage management automation and reporting tool.

According to the Dallas company, the product delivers on-line, real-time space

utilization information that is used to automate routine critical storage management functions.

This version also includes a job submission service to allow ad hoc job creation, which enables users to manually submit a job while on-line without having to leave Same:Automate.

Release 3.1 monitors the storage environment by selecting, viewing, filtering and sorting messages that are written to a storage message log.

Pricing begins at \$24,290 for Group 30 processors.

► Sterling Software
(414) 951-5300

Information Builders, Inc. has introduced Focus Report Writer and Focus Interface for SAP on IBM's MVS platform.

According to the New York company, Focus is a complete application development and decision support tool that includes business graphics, statistics and comprehensive reporting along with automatic facilities for producing screens, logic and database designs.

The product offers a scalable database server and portability across mainframe, midrange and microcomputer environments with transparent data access. Focus can create applications ranging from simple reports to large-scale production information management systems.

The Focus Report Writer package is priced from \$47,000 to \$102,000. Prices for Focus Interface for SAP range from \$25,000 to \$52,500.

► Information Builders
(212) 796-4433

Software 2000, Inc. has introduced Release 7.3 of its Human Resources 2000 (HR2000), business management software.

According to the Hyannis, Mass., company, HR2000 is an integrated set of applications for managing all aspects of a company's human resources function.

Designed for IBM's AS/400, the series consists of Personnel 2000, Payroll 2000, Flexible Benefits 2000, Defined Contributions 2000 and Industrial Health 2000. Enhancements in Release 7.3 include bidirectional intercompany transfers, enhanced shift processing, a purge applicant data function, data-sensitive transactions within benefits administration and a tax operations module.

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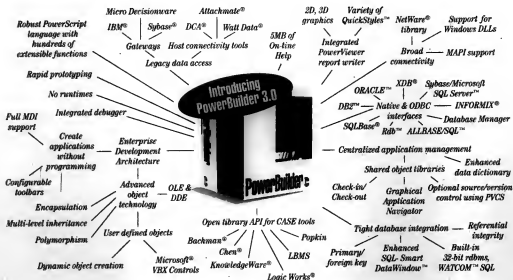
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Application Development

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4GL bridges Unix, Windows

Informix users cite language's flexibility

By Kim S. Nash

Informix Software, Inc. in Menlo Park, Calif., recently shipped a Windows version of its fourth-generation language designed to convert character-based Unix applications to Windows and build single versions of new applications that can be deployed as either Windows or Unix systems.

That kind of flexibility pleased two early users, but they noted that they would like Informix development tools and databases even more if the tools worked with products from other vendors.

"We'd have more freedom," said Terry Walker, senior programmer analyst at Siemens Energy and Automation in Raleigh, N.C. The ability to interchange Informix-made and third-party tools "might lower our

costs—who knows?" Walker said. "For now, though, we cannot look into that option."

Not a team player

To be sure, users of other databases and tools, including products from Oracle Corp. and The ASK Group, Inc., have voiced concerns over the same matter: Database engine and development utilities work well with sister products but not with those from rival firms.

Informix is expected to break off its development tools, adding support for other databases sometime next year, according to one user, Nancy Li, an Informix product manager, declined to comment.

Here and now, however, Informix-4GL for Windows has saved the importance of time and money that early users time and money that

4GL, page 88

The next step

After adding Windows support to Informix-4GL, the next step for the company is object-oriented technology. Informix-4GL, as the follow-on to code-named, should arrive late next year or in early 1995, according to a spokeswoman.

Tools

LBMS promises effective control

By Melinda-Carol Ballou

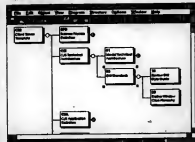
Targeting developers who seek to set up consistent development practices across client/server environments, LBMS, Inc. recently announced Process Engineer (PE) Version 2.0.

Houston-based LBMS is a provider of Windows-based client/server computer-aided software engineering (CASE) and process

management tools. PE 2.0 is a customizable environment for defining, developing, measuring and improving the application development process. It now offers full Windows support.

Current LBMS users are briefed on the new version talked about the importance of such tools, both for traditional development and in client/server environments.

"Without a tool [like this] you don't have consistency in the development process," said Sharon Cross, a project manager at Boston Edison Co. "If project managers are trying to keep track of LBMS, page 88



PE 2.0 is a customizable environment for defining, developing, measuring and improving application development.

CASE takes its place in client/server universe

By Melinda-Carol Ballou

Computer-aided software engineering (CASE) is overcoming a bad reputation and is beginning to take its place in the brave new world of client/server computing, according to some users and analysts who attended a CASE and Object World Conference last month.

Several of these users and analysts stated that a steep learning curve and exaggerated expectations of the advantages of using CASE tools have led to disappointment and problems in the past. But they also said that CASE tools are required to act as a compass through the mazes of client/server and distributed application development.

"The first generation of CASE tools had problems. It was difficult to use and based on a mainframe model of computing," said Judith Hurwitz, president of Hurwitz Consulting in Watertown, Mass. "The folks that stuck with the good early tools and took the time to really learn and use them got some real value, but there are no magic bullets, and CASE is no exception."

New life for CASE

However, the new face of CASE—with graphical user interfaces to make tools easier to use—and the need to move beyond lower-end client/server tools to take infrastructure and design into account are giving "life to the whole CASE industry," Hurwitz said.

While lower-end client/server tools such as Gupta Corp.'s SQL Windows, PowerSoft Corp.'s PowerBuilder and Microsoft Corp.'s Visual Basic offer good back-end code generation and construction, they lack automated front-end analysis and design support, said Gerald Bennett, a senior information systems analyst at Carolina Power and Light Co. in Raleigh, N.C.

Even though Bennett spent much of his time at the show learning about client/server, object-oriented and business process re-engineering issues rather than attending CASE-related sessions, he said CASE will play a key part in his group's move to client/server.

"I see CASE tools playing a role [in this area] but not as big a role as they were originally billed as playing," he said. "You need to have the front-end framework for developing larger [client/server] systems, and the CASE tools will provide that."

He said his organization is just kicking off its client/server production effort and is moving out of pilot mode. CASE tools will play a key role in that transition, he said.

The need for CASE in client/server environments will be even greater than the need for CASE for centralized, mainframe application development, according to several analysts.

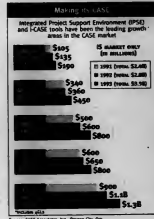
"Once you move out of the glass house, there are greater levels of complexity," said Ed Acty, an analyst at International Data Corp. (IDC), a Framingham, Mass., consulting firm. "Only the very naive would think that CASE is dead."

He said research indicates IDC customers

plan to continue to adopt CASE, but they want the tools to move outside the traditional data center to handle client/server and distributed systems. And multiple vendors have begun to do just that [CW, Oct. 18].

"Client/server helped bring [the need for CASE] to light," said David Sharon, president of CASE Associates, Inc., a consulting firm in Oregon City, Ore. "Finding applications off the mainframe is the function of tools that let you do redevelopment and also of tools that let you control and synchronize what you're doing with legacy systems," he said.

He said "CASE-bashing" resulted from both



frustrated user expectations and a narrow perspective about the definition of CASE, limiting it to design analysis, requirements analysis and code generation. The real surge for CASE will be in the areas of configuration control, process management and synchronization of development activities, he said (see chart above).

Users are still deciding. A development group at Federal Express Corp. in Memphis is trying to determine the future use for CASE tools. Like Bennett, Ken Preslar, a technical adviser at FedEx, spent little time at the Object CASE sessions. He said his group will probably continue to use CASE tools, but exactly how and whether they will fit into client/server development have yet to be fully determined.

"I certainly appreciate what CASE tools offer to us [currently] and what they potentially offer us," he said. "I'm anxious for the time when the tools are a little more stabilized. We came into using CASE tools with high expectations, and so far I have found the tools meeting up short of what we expected. I'm not sure that it's because the tools are flawed, but [rather] that our expectations are too high."

4GL bridges Unix, Windows

CONTINUED FROM PAGE 57

they might otherwise have spent writing new applications. For example, the Florida Association of Court Clerks wants to

expand a child-support system from a Unix character-based mode to run on PCs with a Windows graphical user interface.

The association brought in Unisys Corp. to help with the transition and build new features into the system.

The first part of the process—porting the existing application to Windows—is done, said Alain Wampouille, a Unisys senior programmer analyst.

"Part of the reason we wanted to beta [test] Informix's Windows product is to get a jump on this stage of the project," Wampouille said. Code recompiling and rewriting is unnecessary, he explained. "You load the Informix tool and then run the application on the target platform. It takes minutes."

Walker said he does not expect a two-

minute job, mainly because he has several large applications to migrate, including sales, marketing and engineering systems. By mid-1994, much of the transition to Windows from character-based Motif-based Unix programs should be complete, Walker said.

"That time period probably won't be an Informix consideration but [may result from] running into capacity limits of Windows 3.1," he added.

Informix 4GL for Windows is priced at \$1,995 for a development version and \$300 for a runtime edition. Among its new features are the following:

- A graphical form painter to let users create and edit fields in predefined forms via drag-and-drop methods.
- A graphical interactive debugger to let users run code and debug existing code in separate windows at the same time.
- Context-sensitive on-line help facilities for Informix tools through pop-up Windows and pull-down menus.

Windows rivals abound

- **Microsoft's** Ingres SQL Windows product runs under graphical Unix and Windows environments with no support for character-based applications.
- **System, Inc.** does not offer a Windows-based 4GL, and Oracle sells Unix and Windows generation products separately.
- **PowerSoft Corp.'s** PowerBuilder and Gupta Corp.'s SQ Windows run only in Windows setups. They do not support Unix.

Briefs

Uniface rolls out bridges
Fourth-generation language vendor Uniface Corp. recently introduced its second generation of computer-aided software engineering (CASE) integration with the availability of Uniface CASE Enhancement Packs that include a new Uniface Model Synchronizer with CASE bridges to 16 leading CASE tools. The synchronizer offers developers integration between the design and construction phases of application development. Also bundled with the packs is CASE Interface Guidelines, a document that details development of the bridge and modification procedures.

Debugger buyout
AER Software Corp., a developer of productivity tools, has acquired Virtual Technologies, Inc., a purveyor of Unix software and the Sentinel debugging environment.

Protocols integration
AT&T/NCR Corp. and Protocols, Inc. announced an agreement to integrate Protocols' advanced statistical data collection and expert-systems troubleshooting capabilities with the NCR StarSentry enterprise management platform. The integrated release is scheduled for the second quarter of 1994.



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LBMS promises effective control

CONTINUED FROM PAGE 87

things with a method, a bunch of books and a pencil and paper, it just doesn't happen as efficiently. Automating the process makes it easier to gain compliance. We don't hit [developers] over the head with a hammer, but [PE] reminds them of what they are supposed to do."

Cross said her group was looking forward to this release to support the roll-out of standard methodology processes for client/server development at Boston Edison. Particularly useful with the new version are its iterative prototyping and easy-to-use visual project planner; intelligent resource assigner, estimator and scheduler interface, she said.

Iterative development lets users create chunks of an application, ship out those portions to users, get reviews back and then revise the code, as opposed to coming out with an entire huge project, she explained.

Popular new features

According to Phil Fason, a senior manager at Holiday Inns Worldwide in Atlanta, the new version's ease of use and more effective process management are im-

portant features.

"We get feedback from managers using similar processes, then go and make the changes once. This lowers the work load and also lets us measure and manage the process," he said. "Before, everyone just did their own thing."

PE 2.0 offers a suite of LAN-based tools: Process Engineer, PE/Process Library and PE/Process Manager.

Process Engineer targets project managers and lets them rapidly build project plans from methodology templates; define and store information on progress, deliverables,

roles and resources; apply multiple estimate models; and create reports and bidirectional interfaces to a range of project scheduling

tools. Process Engineer can also invoke other development tools, such as LBMS PE 5.0.

Library of methodologies

The PE/Process Library is a LAN-based repository that offers automated access to development methodologies. LBMS officials said. With this version, the library offers customizable process templates; reusable process components or kernels; and hypertext access to all methodology reference manuals. It also includes configurable metrics models to estimate and measure the development process.

PE/Process Manager, a maintenance tool for PE/Process Library, lets developers define, plan, control, measure and improve the software development process, they said.

Another early user of the project said that his group is able to coordinate processes across multiple projects with PE.

"The tools are important because they allow the rapid assembly of custom project templates to provide consistency," said Glenn Shimamoto, a vice president at Bankers Trust Co., a New York banking and investment firm, about PE 2.0. "We need to do rapid client/server development all the way through traditional development. PE allows you to service a variety of different processes across projects."

Process Engineer 2.0 is shipping now for \$2,500 per client, PE/Process Manager costs \$2,500 per client, and PE/Process Library costs \$25,000 per server.

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Application Development

Object-oriented languages

Visual language gains ground with programmers

By Andrew Sater

A visual programming language developed by Prograph International, Inc. is making inroads into corporate MIS departments. Companies that have built Apple Computer, Inc. Macintosh-based applications using Prograph 2.5 include The World Bank, J. P. Morgan & Co., Montgomery Securities, Wisconsin Power & Light Co. and Emerson Motors.

As with other object-oriented languages, Prograph defines objects and methods by means of icons instead of text, eliminating the need for C, Pascal or any other textual language. Each major category of operation is assigned a unique pictogram, or icon. By connecting them, the programmer creates the code as a diagram of icons.

Popularity on the rise

At the Halifax, Nova Scotia company's first annual Programmer's Conference recently, Kurt Schaecker, a department manager in Apple's Human Interface group, said, "I think Prograph is currently on some sort of cusp. On the other side of that cusp, it will be a very mainstream player in the generation of the standard double-clickable, document-centered tight applications you see on the Macintosh."

At Wisconsin Power & Light, the MIS department spent more than \$1 million to make engineering models of distribution circuits by customizing an automated mapping system. The models help the utility optimize its 17,000 miles of circuits. Engineering computer analyst Eric Knapp estimates this could save in excess of \$20 million annually. But the project was scrapped after 15 months of development.

Knapp, who had been on the team, moved from MIS in the engineering department in order to build the application in Prograph while he worked closely with the distribution engineers. It took six months to create the first engineering model, and four distribution engineers have been beta testing the application since August.

"They're able to look at data for a square mile section a lot easier than they can on the text-based mainframe system. They can know a lot more, a lot quicker," Knapp said.

Knapp credits Prograph for the success, saying the visual language lends itself to graphical display and it is well-suited to the corporate environment, where applications must be developed within six-month time frames. "We now have the tools corporate developers can use to write real applications in-house in a reasonable time frame," he said.

Philip Claringbull, MIS director at

Montgomery Securities in San Francisco, selected Prograph to automate the process by which brokers enter orders and forward them to the trading floor for execution. At Montgomery, an IBM AS/400 runs the trading floor and 100 Macintoshes provide the interface.

"Since we have Macs sitting on the desks, the requirement was to make it a more graphical interface, so that it would look like a ticket. The whole idea was to make it as seamless and natural as possible," he said.

Claringbull said the application was developed in-house in two months, using the LUS Advanced Program-to-Program Communications interface between the client and the AS/400. His programmers had not previously written applications on the Macintosh, and Claringbull estimated that it would have taken significantly longer had they programmed in C or C++ language.

The application went through beta testing in October and is scheduled to go live this month.

J. P. Morgan used Prograph to develop a component in its previous metals options trading system, and the World Bank used Prograph to build a fuzzy-logic market analyzer. Both applications have been completed but they are not yet in use.

Paul Harnois, editor of the "Object-Oriented Strategies Newsletter" in Boston, said of Prograph, "It's well put together, the interface works well, and it does what they claim it does in terms of generating code."

Some aspects of Prograph are user-unfriendly, Harnois warned: "The data flow models are almost as intimidating as learning how to write Cobol."

Macintosh and more

Harnois said Prograph International needs to grow beyond the Macintosh platform and support more standardized languages. He said the company will also have to change Prograph's notation structure when a standard object-oriented methodology emerges.

The company began shipping its new release of Prograph, CPX, on Oct. 15. Mark Szpakowski, Prograph International's manager of human interface, said CPX is more powerful and considerably faster than 2.5. He said the class library is comparable to MacApp, and that a multiple project environment makes it easier for a small team of programmers to work together.

The company said it is developing versions for Microsoft Corp.'s Windows NT and Win32s, the PowerPC and Unix for release in 1994.

Sater is a writer in Halifax, Nova Scotia.

Application Development

Magie Software Enterprises has introduced MagicFrame, a product that enables users to directly access mainframe applications in a transparent process as if they resided locally.

According to the Irvine, Calif., company, MagicFrame consists of a 3270 terminal emulation program integrated with Magic, the firm's rapid application development system.

The combination provides direct communication between PCs and the mainframe, regardless of the database management system, mainframe operating system or transaction system.

The product automatically and transparently updates mainframe data on-line.

Programming is not required. MagicFrame is available for Magic Versions 5.02 and 5.5.

Pricing starts at \$4,800 per user for development and \$200 per user for deployment.

► **Magie Software Enterprises**
(714) 250-1718

Borland International, Inc. has announced the dBase Compiler 2.0 for DOS.

According to the Scotts Valley, Calif., company, the compiler includes 32-bit support that allows users to compile and distribute applications created in dBase that are up to twice as fast as applications developed with dBase IV 2.0 or dBase Compiler 1.0.

An intuitive menu-driven user interface is provided, and the dBase Compiler 2.0 is 100% compatible with the dBase language.

Without modification, users can create stand-alone executable applications from dBase III, dBase III Plus and dBase IV programs.

Other features include AutoCompile and AutoLink, automatic access to 4G bytes of memory through the dynamic Virtual Memory Manager and Manufacturing Automation Protocol file creation that assists developers in documenting and modifying programs.

The dBase Compiler 2.0 for DOS supports 16-bit EXE generation on all Intel Corp. 80286-based or higher IBM-compatible PCs running DOS 3.3, 4.01, 5.0 or 6.0.

The dBase Compiler 2.0 for DOS has an introductory price of \$199.95 until Jan. 31, 1994, after which it will cost \$495.

► **Borland**
(408) 431-1000

Bluewin, Inc. has introduced DB-UM/X, a software development environment for building Open Software Foundation (OSF) Motif graphical client/server applications for relational database management systems.

The product is a Unix-based database tool that incorporates the core front-end technology of the UM/X graphical user interface development tools for OSF/Motif.

According to the Mount Laurel, N.J., company, DB-UM/X enhances UM/X's key features with four specialized com-

ponents collectively known as the Network Object Toolkit.

These components include the Network Object Browser, Network Object Bind Editor, Stored Procedure Viewer and the Network Object Bind Browser.

The product will be available in December. Prices for DB-UM/X and UM/X will be \$6,000.

► **Bluewin**
(609) 273-4000

Software Productivity Research, Inc. has announced the Windows version of Checkpoint, a knowledge-based software management tool.

According to the Burlington, Mass., company, Checkpoint adds value to the management process by suggesting alternate approaches to development; estimating software effort, cost, quality and deliverables; modeling alternate scenarios with a full range of environmental and product features; and providing performance benchmarks based on organization-specific and industry-wide standards.

In single quantities, Checkpoint with documentation costs \$20,000 per copy, \$60,000 for five copies and \$98,000 for a 15-copy site license.

► **Software Productivity Research**
(617) 273-0140

Viasoft, Inc. has announced Release 3.1 of the Existing Systems Workbench (ESW) Testing facility.

According to the Phoenix, company, ESW Testing 3.1 is an interactive testing facility of the company's ESW.

A key option is support for the PL/I language across all IBM environments, including CICS, Batch, IMS/DC and industry-standard database managers.

File Services, an option specific to the CICS environment, extends existing file services and supports DLI and DBE environments.

Enhancements include ESW support for all languages and environments and the execution of high-level assembler programs under ESW Testing for Assembler.

Prices for the product range from \$21,000 to \$146,500.

► **Viasoft**
(602) 652-0050

IMRS, Inc. has announced the Hyperion Developer's Toolkit, a set of high-level programming functions that offer open access to Hyperion, the firm's financial information management application.

According to the Stamford, Conn., company, users can create custom applications that interact with Hyperion or link Hyperion to existing third-party applications.

Functions for the tool kit include: updating Hyperion with data from non-IMRS applications; formatting data to move between Hyperion and other applications; allowing access to Hyperion's application processing and maintaining data integrity.

The Hyperion Developer's Toolkit can be licensed for \$15,000.

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- High Development Productivity via RAD and Prototyping Techniques
- Efficient Use of an Organization's Computing Resources

IMPORTANT CLIENT/SERVER ENVIRONMENTS

- Platforms: Windows, Macintosh, OS/2, UNIX, Alpha
- Used Interfaces: Windows, Motif, Macintosh, Character Mode
- Networks: Netware, LAN Manager, TCP/IP

KEY CLIENT/SERVER TECHNOLOGIES

- Graphical User Interfaces (GUIs)
- Event-Driven Applications
- Object Oriented Development

CLIENT/SERVER SOFTWARE TYPES

- Database Management Systems
 - Network Software
- Tools: CASE, Application Development, and End User
- Application Packages

SELECTED CLIENT/SERVER STANDARDS

- ANSI ISO SQL is the industry standard for RDBMS access
- OSF DCE defines specifications for distributed computing, including remote procedure calls, directory services, and security services
- X/Open's XA interface defines a standard interface which provides interoperability between heterogeneous transaction processing monitors

THE NEW WAVE OF CLIE

- (1) Client/Server is the dominant deployment architecture for information systems in the 1990s. During the first phase, in the mid 1980s, organizations began evaluating client/server computing, by building prototypes and simple systems to validate the concept. This typically consisted of a small number of homogeneous clients connected to a server for file and print sharing.

PILDT
CLIENT/SERVER



- (2) In the late 1980s, as the price/performance and benefits became apparent, Fortune 1000 organizations began deploying client/server applications at the departmental level. LAN-based computing became pervasive and provided the impetus to a host of new technologies, including GUIs, RDBMS, and powerful Unix servers. The typical configuration for these early decision support systems was PC LANs connected to a departmental server.

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TQM

**CIOs ARE LEARNING
SOME HARD LESSONS
ON THE ROAD TO TOTAL
QUALITY MANAGEMENT**

BY AMY BERMAR

“Quality on trial.”
“TQM: Is it dead or alive?”
“Are we falling out of love
with TQM?”

When titles like these begin popping up on books, articles and conference sessions, it's clear that the bloom is off the rose with total quality management (TQM).

Virtually every organization rolling out a quality program has encountered significant frustrations along the way. Information systems managers such as Patt Fantetti, vice president of development services at the First National Bank of Chicago, have suffered repeated setbacks. Top IS executives such as Corning, Inc.'s Harvey Shrednick or Bose Corp.'s Warren Harkness have found themselves face-to-face with unexpected



TQM, page 100

► Corning's Harvey Shrednick: Customers should be the judge of a TQM program


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TQM

CONTINUED FROM PAGE 97

and unpleasant surprises.

But because these leaders have persevered with their TQM programs for many years, TQM still has the allegiance of many in the IS community. For every study that questions the value of TQM, another shows it provides a payback (see chart at right).

The question is not whether TQM works but whether a company adopting TQM can avoid the traps and mistakes others have made—and learn from its own experiences and errors.

Tackle specific processes. The Charleston Area Medical Center in Charleston, W. Va., has implemented several quality-improvement projects since 1980. While most have been successful, one sticks out as a failure in the mind of its chief information officer, Charles M. Jones. That was a quality-improvement team that was meant to identify and propose solutions to the difficulties of managing the center's three hospital complexes as a single unit. It was "too large and complicated an issue for a quality action team to address and resolve," Jones says. By contrast, the successful teams tackled such concrete processes as improving the annual budget development process. Some issues are better left to the regular management decision-making process, Jones says.

Avoid "sloganeering." Jones says he is proud of one error he helped the medical center avoid: too much flag-waving for TQM. "I've seen programs rolled out with banners and slogans and logos posted everywhere. That tends to place too much ideology on the program itself, instead of on the underlying values."

Jones persuaded the company's quality steering committee to avoid emblazoning the motto and letterhead with catchphrases like "Quality counts!" In fact, center executives deliberately chose not to call their program a TQM program. "We've even dropped the term quality and called it continuous improvement to get away from slogans and banners," Jones says.

Employee resistance

Even when programs are under way, employees can sabotage efforts to revamp outdated work processes.

First National's Flanetti discovered this the hard way. As part of his bank's TQM effort, he tried to



M

launch a function-point metrics program as a way of measuring the productivity of his software development staff. He ran head-on into unexpected opposition from programmers, analysts and mid-level IS managers.

In retrospect, Flanetti says he

wonders whether the program's premise was too negative. "We were using [function-point metrics] to identify defect rates." He realized he could have sold the program more effectively if he explained to his project managers how function-point metrics benefit them.

Instead, the first attempt never got past the stage of defining employees' job descriptions, while the second attempt faltered as soon as managers had to measure employees' productivity.

Lack of customer focus

Most IS departments are struggling hard to become more customer-focused. This may be one of the biggest problems confronting IS organizations as they try to reshape their corporate culture.

It's easy to say "OK, guys, we're going to put a TQM program in place, and the two components of the program are focusing on the customer and empowering our employees," says Mike Kohlstedt, chief financial officer at Brook Control Systems, an Atlanta software firm.

But achieving customer focus and employee empowerment is another matter. "That is a radical shift, if you're not doing it already," Kohlstedt said.

"I had one employee tell me that this would be a great job if it weren't for the customers," says Shrodnick, senior vice president of information services at Corning, the \$8.7 billion specialty glass manufacturer in Corning, N.Y. The employee, he says, overlooked one critical fact: "If there weren't any customers, there wouldn't be any need for the IS department."

Customer surveys reveal areas in need of improvement that might not be obvious. For example, surveys told Shrodnick his 250-person IS department was perceived as difficult to deal with. The key issue for users wasn't the prospect of coping with unfamiliar technology, but bureaucracy: Customers seeking simple answers got passed off too many times from one IS staff

member to another.

Perhaps the most common complaint from senior management, as well as the rank-and-file employees expected to change their work habits, is that quality takes so long to achieve.

"Companies are looking for the quick fix," says Rick Swanberg, principal at Ernst & Young's Boston-based Center for Information Technology and Strategy. Managers "have a year to make change happen and want to go out and find the best practice that will make things better."

TQM requires cultural change, and "you don't reculturate a company in a year," says Rose's Harkness, director of corporate IS at the \$400 million audio manufacturer in Framingham, Mass., and one of the profession's more visible advocates of TQM.

"It wasn't until I got personally involved in meeting, teaching, doing and advising quality teams... [that I] more clearly understood the realities of implementing a TQM program," Harkness adds.

The big picture

Lack of executive leadership is often blamed as the primary reason why TQM programs fail. But sometimes programs fail because leaders are too successful inculcating TQM, and the drive for quality becomes an end instead of a means. This prompted a new chief executive officer at Florida Power & Light Co. to pull the utility's award-winning TQM program.

IS organizations have their own variation on this theme, Harkness says. They can become so obsessed with satisfying their customers that they're reluctant to risk projects based on emerging technologies

out of fear that satisfaction ratings will dip. And that's a big mistake.

"The customer is looking for technical leadership," he says. "That's the bottom line. Sometimes you can overemphasize the quest for customer satisfaction and not focus on your core business."

Similarly, adhering strictly to the TQM doctrine of one particular TQM guru can lead to a dead end.

Senior management at Owens Healthcare, Inc. in Houston searched for the definitive quality program. But like others who have sought a TQM Holy Grail, "we found that there was no one system that seemed like a good cultural fit. We ended up hiring a local consultant and cutting and pasting from the best of what we had seen," says David Leebig, CEO of the pharmacy management firm.

Berner is a free-lance writer in Newton, Mass.

LESSONS FOR IS EXECUTIVES

Here's some advice from two CEOs who have lived through a TQM effort:

GOOD MOVES

- ✓ Help provide an enterprise-wide perspective to the TQM effort.
- ✓ Volunteer at the outset. Don't wait for someone to ask you to be involved.
- ✓ Be a consensus-builder in the corporate effort, a catalyst rather than a driver.
- ✓ Be a leader for the IS staff. They will be watching to see if you really support the process or just give it lip service.
- ✓ Become a resource for the quality teams in resolving cross-functional conflicts.
- ✓ Get the IS staff [your people] trained in the quality process. Many of the skills used in systems analysis will translate well.
- ✓ Be realistic with the time frames that you set. People will lose interest if a task can't be accomplished in six months or less.

BAD MOVES

- Don't try to control information production and use. Encourage end-user access to information, off-the-shelf software, etc.
- Don't allow IS to be a bottleneck at the implementation phase. Anticipate recommendations to re-engineer systems or support streamlining efforts.
- Don't be an obstacle to the TQM effort. Look for opportunities to change "can't be done" to "can do."
- Don't promise more than you can deliver.
- Work with your people to avoid the "not involved here" attitude.
- Don't permit the overinvolvement of just one or two individuals in the IS department.

Source: David Leebig, CEO, Owens Healthcare, Inc., Houston; Charles M. Jones, CEO, Charleston Area Medical Center, Charleston, W. Va.; College of Healthcare Information Systems Executives, San Antonio, 1993.

Minority hiring getting more attention, help

By Jean S. Rozman

Federal requirements and greater appreciation of the value of a diversified work force have made minority hiring a priority in the 1990s. Fortunately, there are resources available to information systems managers looking to hire minorities.

Helping to tap the pool of minority group professionals are on-line databases and electronic job postings that are replacing traditional career fairs and resume books.

Large corporations can sign up for access to on-line databases, which hold thousands of names and post jobs electronically. These databases are used by several large corporations, including IBM, Hewlett-Packard Co., Digital Equipment Corp., AT&T, Allstate Insurance Co., Kraft General Foods and Amoco Corp.

A number of recruitment resources are provided by professional organizations with minority group membership. Several national organizations maintain on-line databases, including the Black Data Processing Associates (BDPA), the National Urban League, the National Society of Black Engineers and the National Black MBA Association (see chart at right).

Seeking consultants
IS managers are also turning to diversity consultants to hire a more balanced work force for their information technology operations and software development staffs.

The reason, management consultants say, is that the labor pool is changing, becoming a broad mixture of various ethnic groups and age brackets.

Many diversity consultants are independent advisers, prepared to offer in-house seminars and to advise companies on diversity hiring resources. But equally important, they offer advice on management issues associated with having a diverse work force.

"I think there's been persistent pressure for corporations to diversify, to look for different human resources," says Antoinette Malveaux, director of operations for the National Black MBA Association in Chicago. "Diversity managers are being appointed, diversity task forces are being put in place, and companies are thinking about what their work force will look like in the year 2000."

Interest in diversity hiring has also picked up because of global competition. In a multicultural world, having a multicultural work

force is viewed as an asset.

IS shops in corporations that are federal contractors face an additional challenge: The government requires good-faith efforts to employ a work force reflecting the regional labor pool. Managers in such firms must hire employees that represent the ethnic mix in their community, as shown by Department of Labor statistics.

The demand for a diversified work force is written on the wall," says Otis Morgan, president of the Chicago chapter of BDPA, a national group for minority information technology professionals.

"The most progressive companies have developed relationships with associations to assist them in finding a diverse group of candidates," Morgan says.

"Typically, there's a plan in place that says an organization wants to identify and attract qualified candidates with a variety of backgrounds," says Jeff Loehr, director of human resources at Informix Software, Inc. in Lenexa, Kan.

Stuck in a traditional rut
But many companies still have trouble breaking away from traditional hiring practices to attract a more diverse employee base.

"Many companies have been going after their traditional sources for recruitment," notes diversity consultant Linda G. Cooper at LGC & Associates in Kansas City, Mo. "They may be looking for people who talk like they do, who went to the same schools they did. It does

systems manager in information services.



Kalish C. Khanna has been named the new head of global information technology at the Society for Worldwide Interbank Financial Telecommunications.

Khanna will direct all systems staff at the company's headquarters in Belgium and in the U.S. Previously, Khanna served as senior vice president of systems and technology at the CITI Group of Manufacturers Hanover Trust Co.

David B. Cameron has been named CIO at Trivest, Inc. in Coconut Grove, Fla. Cameron joined the \$550 million investment firm from Wachusett Corp., where he was vice president of information systems.

Michael J. Deolagha has joined White Corp. as director of the chemical manufacturer's information technology center in Woodcliff Lake, N.J.



RESOURCES

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1320 Connecticut Ave.
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Suite 610
Washington, D.C. 20036
(202) 775-4301

National Black MBA Association
180 N. Morgan St.
Chicago, IL 60611
(312) 236-2622

National Society of Black Engineers
1454 Duke St.
Alexandria, VA 22314
(703) 549-2207

National Society of Hispanic MBAs
P.O. Box 2903
Chicago, IL 60690
(312) 856-9130

National Technical Association
206 N. Washington St.
Washington, D.C. 22314
(202) 626-6100

National Urban League
1211 14th St. N.W.
Suite 800
Washington, D.C. 20005
(202) 986-1804

require time and money to identify talented people for a diverse work force."

Hitting the books

Job candidates must also keep up their skills, notes Timothy Williams, president of T. A. Wilson & Associates in Northboro, Mass.

"I talk about being as multifaceted as possible," he says, "so that [candidates will] be prepared for the next technology changes."

For example, computer programmers and systems analysts must make a point of learning about client/server and object-oriented technologies, as well as traditional programming languages such as Cobol.

Malveaux notes that a recent survey of the National Black MBA's 3,000 members nationwide showed they are interested in career programs to combat the recent recession. Many attend national conventions and career fairs and try to network with other professionals to find new jobs.

Once a diverse work force is in place, management policies must be refined to support workgroup conflicts and communication problems that may arise.

"You have a work force that has been, for the sake of argument, all green, and people have not known how to deal with yellow, blue and red," said Norris Hite, publisher of the National Society of Black Engineers' magazine in Alexandria, Va. "Mind-sets have to change all the way down the line because managers are used to managing people who look like them."

Executive

Track

AT&T has announced the appointment of James L. Zucco Jr., to a new position as chief information officer for its Business Communications Services unit. He was senior vice president of strategy and technology at MCI Communications Corp., and earlier he was in a senior management position with Nolan, Norton & Co., a consulting firm with offices in Boston and London.

As CIO, Zucco will lead the information management activities for Business Communications Services and help leverage its information assets to increase customer satisfaction and shareholder values.

He will report to John C. Petrilli, president of Business Communications Services, which serves the global business long-distance market, and Ron J. Ponder, AT&T senior vice president and CIO. Zucco's appointment is the third by

AT&T this year in its effort to make innovative use of advanced information technology to enable its communications services employees to be more effective in their work with AT&T's customers, suppliers, alliance partners and with each other.

Also hired recently in this effort were Alan G. Jones, formerly vice president and CIO at Tektronic, Inc., who was named CIO for AT&T's Customer Communications Services unit; and Ponder, formerly executive vice president and CIO at Sprint Corp.



Aris, who has appointed Frank Notaristefano director of systems development for the WizeCom International Ltd. subsidiary. Notaristefano will coordinate all development for the subsidiary, which provides reservation services and a variety of other electronic systems products and programs to the hotel and car rental industries.

Notaristefano joined Aris in 1989 as a

Doelling will be responsible for end-user computing, emerging technologies and IS quality assurance. Prior to joining Wells, Doelling was a group manager at PepsiCo, Inc.

Paul A. Brands has been named chief executive officer at American Management Systems, Inc. in Arlington, Va. Brands succeeded Charles O. Roscetti, who will remain as chairman.

Brands also serves as the company's vice chairman and will concentrate on day-to-day operations.



Texas Instruments, Inc. has named J.R. (Bak) McLendon vice president and manager of its global IS and Services Division, at its Dallas headquarters.

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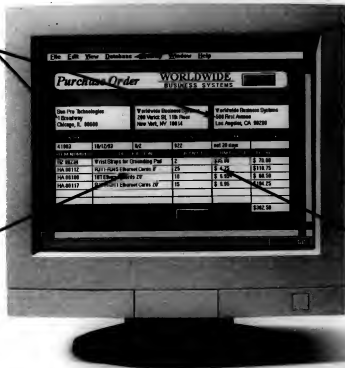
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Calendar

NOV. 14-NOV. 20

Xplor '93. Denver, Nov. 14-19 — Contact: Xplor International, Torrance, Calif. (310) 375-4240.

Comdex/Pall. Las Vegas, Nov. 18 — Contact: Kimberly Compton, Micrographs, Inc., Richardson, Texas (214) 995-6613.

NOV. 28-DEC. 4

E-Comm '93. Atlanta, Nov. 29-Dec. 1 — Contact: E-Comm '93 Conference, Dallas, Texas (214) 424-0542.

Fourth Annual Computer Fax Conference. Monterey, Calif., Nov. 30-Dec. 1 — Contact: BIS Strategic

Business, Norwell, Mass. (617) 862-0000.

DEC. 5-DEC. 11

Database Marketing Conference & Exposition. Orlando, Fla., Dec. 5-7 — Contact: The National Center for Database Marketing, Stamford, Conn. (212) 672-2410.

Lotus Notes Users Conference. Lake Buena Vista, Fla., Dec. 5-8 — Contact: Lotusphere '93, Sudbury, Mass. (508) 443-1437.

Computer Measurement Group (CMG): Managing the Wave of Technology. San Diego, Dec. 5-10 — Contact: Computer Measurement Group '93, Chicago, Ill. (708) 652-1812.

Wireless Datacom '93. Washington, Dec. 6-8 — Contact: Communications Events, Inc., Norwalk, Conn. (203) 947-5131.

"Outsourcing the IS Function." San Francisco, Dec. 8-9 — Contact: International Quality & Productivity Center, Upper Merionide, N.J. (201) 763-4493.

The Outsourcing Conference: "Opportunities, Strategies, Realities." Boston, Dec. 8-9 — Contact: Digital Consulting, Inc., Andover, Mass. (508) 479-3880.

Database World. Chicago, Dec. 8-10 — Contact: Digital Equipment Corp., Andover, Mass. (508) 470-3880.

DEC. 12-DEC. 18

Lap and Palmtop Exposition and Conference. Yonkers, Dec. 13-14 — Contact: Laptop Exposition, New York, N.Y. (212) 682-7068.

JAN. 9-JAN. 15, 1994

ObjectWorld. Boston, Jan. 10-13 — Contact: World Expo Corp., Framingham, Mass. (508) 579-0700.

JAN. 16-JAN. 22, 1994

Client/Server Conference & Exposition. San Jose, Calif., Jan. 18-21 — Contact: CMP Conference & Exhibit Group, Nashua, N.H. (603) 562-7900.

JAN. 23-JAN. 29, 1994

ComMet '94. Washington, Jan. 24-27 — Contact: World Expo Corp., Framingham, Mass. (508) 579-0700.

JAN. 30-FEB. 5, 1994

Executive Technology Summit '94. Torrey Pines, Fla., Feb. 2-4 — Contact: ATI Travel Management, Chicago, Ill. (312) 614-6642.

FEB. 6-FEB. 12, 1994

Building Enterprise Architectures. Washington, Feb. 9-10 — Contact: Technology Transfer Institute, Santa Monica, Calif. (310) 394-8300.

FEB. 13-FEB. 19, 1994

SIGMA: Workshop on Field Programming Gate Arrays. Berkeley, Calif., Feb. 14-15 — Contact: Association for Computing Machinery, New York, N.Y. (212) 944-1318.

The Sixth Annual Software Support Conference. San Francisco, Feb. 14-16 — Contact: San Francisco Institute for International Research, New York, N.Y. (212) 663-5500.

Distribution/Computer Expo '94. West Irvine, Calif., Feb. 16-17 — Contact: C.S. Report, Uvich, Pa. (215) 455-6410.

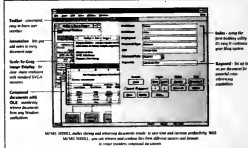
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* "The CW Guide To Servers," Computerworld March 22, 1993

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The CW Guide to Client/Server Financial Software

BEAN COUNTERS

BEWARE

BY JULIA KING

Slowly,

application and a couple dozen people at a time.

The 25 users in the asset-management department, who will soon have 486-based PCs on their desks, will be able to use up-to-the-minute accounting data to do analysis, without the help of the information systems department. The application logic will reside on a Hewlett-Packard Co. HP 9000 server that will run a Sybase, Inc. database.

At Fedex and other Fortune 1,000 companies, accounting applications are no longer regarded as "untouchable." But even though this grandfather of systems is under strong consideration for dismantling and relocating to smaller and more accessible platforms, many companies are hesitant to entrust it to the current batch of mostly unproven client/server financial software just coming on the market today.

The fact is, most companies are more interested in testing the waters with pilot projects and small sample applications. "The major shift will occur toward the end of 1994 and into 1995," says Tony Perry, vice president of software management strategies at Gartner Group, Inc. in Stamford, Conn. "It will become more mainstream when there's more clarity in the market."

"We're starting...with the idea that you

Federal Express Co. is moving all of its mainframe financial applications to a Novell, Inc. NetWare LAN. Slowly, as in one ap-

learn from experience," says David Klimetz, manager of Fedex's financial control system. "You pick one thing, concentrate on it and do it well." Fedex is a beta site for Dun & Bradstreet Software, Inc.'s client/server-based Financial Stream system, which D&B started shipping in September; all modules are expected next year.

The impetus for a move to client/server accounting is undeniably strong: With up-to-the-minute accounting information, managers could identify new markets, forecast global

Bean counters, page 108

CFOs want to analyze real-time accounting information. Client/server applications promise to get them there. But uncertainty abounds, especially in the areas of cost, security and the volume these packages can handle.



Kling is a free-lance writer in Ridley Park, Pa.

inside	HYPE REALITY What's real, what's not in number systems. Page 108	 Financial functions good, security lacking, say scores of Pentabank Planners. Page 118	 Lenses across highest of their financial planners. Page 117
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Bean counters

CONTINUED FROM PAGE 107

buying and selling trends as well as produce management reports as business needs dictate, not as mainframe schedules allow.

In addition, the built-in tools these applications provide allow users to customize their own reports, create one-of-a-kind financial summaries and perform ad hoc queries. Some vendors offer proprietary tools, but some packages use Microsoft Corp.'s Visual Basic or PowerSoft Corp.'s PowerBuilder fourth-generation language.

"The focus of most financial systems in place today is to store information," says Brian Sommer, director of software intelligence at Chicago-based Andersen

Consulting. "But you don't run a business by looking in the rearview mirror. What users want now are management-reporting systems to run the business and not to satisfy auditors."

Slow to make a move

But there are solid reasons for the slow migration. Much of the explanation lies in the user sites. "Users are widely confused about what's happening and what the vendors are telling them," Percy says. "Some just think they should get off the mainframe. Others are drawn to the PC front end. Some want open systems and are heading for Unix. Another direction is relational databases to get to a more strategic platform."

The trouble is that it's very difficult to distinguish among vendor offerings. For one thing, many of the application suites have just started shipping this year, a couple of modules at a time. PeopleSoft, Inc. will complete its suite in December; D&B is expected to finish shipping next year. SAP America, Inc. has released its applications, but few U.S. sites are using them. After two years of talk, the Dodge Group, Inc. sold its ship its systems for first-quarter 1994.

Other notable midrange and mainframe vendors, such as Ross Systems, Inc., J. D. Edwards, Lawson Software Corp. and, next year, Walker Interactive Systems, Inc., are offering client/server versions as an option to early adopters. Oracle Corp. is the market-share leader in Unix financials, but only a small portion of those 1,400 users are in client/server mode, according to Chris Roon, director of applications marketing.

And the vendors aren't offering such help in defusing their wars. "They all say they'll be on the same platform. But in actuality, they all have different strengths," Percy says. "For instance, what model of client/server are they us-

ing? To what extent are they optimizing the underlying database? To what extent are they going after the business process re-engineering crowd?"

Another reason for user reticence is the realization that distributed functionality and flexibility does not come cheap. Anyergo system from Platinum Software Corp.—including general ledger, payables and fixed-asset modules to support up to 100 users—costs between \$200,000 and \$300,000.

This is not out of line with the cost of other accounting client/server packages, which generally are priced according to the number of system modules, number of users or both. Code, Inc.'s Open Accounting System costs between \$30,000 and \$350,000 for a complete system supporting between eight and 64 users, according to marketing vice president Brooke Savage. PeopleSoft's suite costs between \$100,000 to \$300,000 per module.

Not so simple

The bottom line, says Heidi Dix, an analyst at Cambridge, Mass.-based Forrester Research, Inc., is that client/server "is definitely not as cheap as people think it's going to be." Moreover, there is no real pressure on vendors to lower their prices, she says.

Vendors say the up-front costs will reap big savings down the road. But the savings have yet to be proved in any quantifiable manner, says Brian Mel-

us, a Nashville consultant and editor of "Electronic Data Processing/Accounting and Security," a monthly newsletter.

"There's no real cost/benefit analysis being done," Menkus says. "Instead, everyone seems more enamored with the neat technology."

This neat technology, however, can actually slow down accounting processes. At FedEx, users exchange flexibility for slower response times, up to a few seconds. Then again, Kismet says, "Client/server transactions do a lot more. You add an asset once and the application adds that asset to nine sets of books."

Under the previous IBM IMS system, the same asset would be to entered five or six times.

There is also no way to tell at this point whether the client/server packages will handle the heavy-duty transaction volume now processed by mainframe systems, especially since users have mostly been implementing one module at a time.

"There are performance and volume issues that need to be addressed," Savage says. But these issues "have little to do with software and everything to do with network topologies and how servers are configured. If you throw enough hardware at the issue, you can solve the volume problems."

Hardware can do little to solve security threats, however. Under client/server solutions, PC-based users as well as other applications have access to financial

Changing financials

Of 100 buyers' Scorecard respondents, almost half are re-engineering or downsizing their financial applications

What is the status of your financial applications?

Re-engineering with new requirements and functionality

33%

Downsizing to maintain the status quo on a smaller platform

11%

Not changing the applications at all

33%

Other

23%

Source: Beyer's Satisfaction Scorecard

Computers is fierce in the booming market for client/server financial software. But the marketing campaigns are even fiercer. It's important to look beyond the vendor claims to see what the promises really mean.

"We have the first true client/server financial software."

This is a very easy claim to make—and, justifiably—simply because so many models satisfy the technical definition of client/server. But most vendors support only one model. If a vendor says his product's application processing takes place on the client and the server, what does that actually mean? Can you split up the processing differently, moving more of it to the client? Or can you move all the processing to the server? You need to know where processing can take place in order to size hardware, assess network traffic and estimate the product's flexibility.

"We offer the only high-end solutions."

All vendors—from start-ups to legacy vendors—are struggling to get high-end

products out the door. But start-ups and PC vendors don't develop and offer the functions and features one would expect in a high-end solution.

Legacy vendors have the functional experience, but they may lack significant LAN and PC skills.

To capture your attention, most vendors are focusing initial efforts on the user interface. Look beyond the glaze, but don't be seduced to see what you currently have in a more mature legacy system with these initial releases. Often lacking are international capabilities and batch-intersave processes such as allocations, year-end processing, journal entry interface and consolidations.

There is another implication for Fortune 500 or other high-volume companies: performance. Many of these products will

go into full production at customer sites by the end of this year.

Performance capabilities and benchmarks will be unavailable until more companies with high-transaction volumes put these new packages to the test.

"Our software will run truly enterprise-level," says...

"Open" is a loosely defined term. To many of our clients, "open" means the ability to plug and play any combination of relational

databases, network protocols and graphical user interfaces with the financial package they have acquired. In reality, many vendors use one developmental tool set. Some have chosen very exclusive uses of the tools that may preclude easy substitution of other products. Your

organization must develop or find the necessary skills to support the hardware and software environment the product requires.

Although the first releases of client/server financial software may not meet your expectations, don't despair.

Thanks to development tools, you can expect new products and upgrades to the software much faster than in a legacy environment.

Additionally, vendors are teaming with users to incorporate additional financial and industry-specific functionality into their products.

Finally, many vendors recognize the need to improve the performance and high-volume batch capabilities of their products in order to provide solutions for Fortune 500 firms.

Whether a manager in the Software Intelligence Group of Andersen Consulting, the \$2.7 billion international management and technology consulting firm. The group provides Andersen's financial companies and solutions expertise.

HYPE
REALITY

The CW Guide to Client/Server Financial Software

data in relatively open relational databases.

The idea of open access, explains Robert Crane, former editor of *Accounting Today*, is that accounting records are as current as the most recent entries on the system.

"It's a great idea—in theory. When you move off the mainframe, you lose some of your audit trail because you're putting input into lots of different bands," Crane says. "It's this kind of loss of control that scares the hell out of accountants."

Securing the system

Packages announced so far lean heavily on the back-end relational database to provide the security users want, says Jennifer Scholze, a software analyst at International Data Corp. in Framingham, Mass.

"There still aren't a great number of utilities and tools to address security, and this is one of the big reasons people are hesitant," Scholze says.

"Security and control are a double-edged sword," says Kevin Ringelberger, executive vice president and co-founder of Palfium. "We want to open data and empower end users, but we want to make sure that end users get only the right data."

Like other observers, Ringelberger notes that "companies have to institute their own security measures."

Some people are concerned enough about these problems that they're finding alternative ways to get the flexibility they need. "I think it's a lot of hype that client/server is cheaper," says Dennis Croft, director of IS at the state of Flori-

da's controllers office. "Our environment is the single system for corporate records of a \$30 billion corporation. I'm not convinced a client/server environment is the way to go with corporate financial records."

Because various state program managers need to make decisions based on mainframe data, Croft has opted to give users host-based query tools while keeping processing on the mainframe. This way, terminal users and PC users can have access to the data. Individual agencies will be given the means to develop unique applications and reports with Natural language tools.

Control and security are Croft's main concerns. "People need data and information. If you can give them that and still protect the application, that's the way to go."

Some companies are satisfied with downsizing to a Unix platform but keeping all processing and application logic on the server. Most of the mainframe and midrange vendors—including D&B, SAP, Lawson, Ross Systems, J. D. Edwards and Skylight Systems—have created Unix versions of their proprietary software. D&B anticipates that only 20% of its customers will move to true client/server in the next couple of years.

Client/server may seem to be the next way for accounting, but today's leading-edge technology will pale in comparison to what's down the road, according to Andersen Consulting's Sommer.

In a year or so, Sommer says, client/server financial packages will include ties to electronic mail, imaging and work-flow systems. D&B has already progressed toward work flow, and PeopleSoft has announced support.

Vendors will also incorporate exception-based logic, which will automatically alert financial staff members to irregularities or other events requiring im-

mediate attention. The overall trend, Sommer says, is further integrating financial data with other business tools and processes.

"Right now, every product out there is GUI-based with an open SQL database and client/server architecture, and every vendor has the same message that they are God's gift to client/server and open systems," Sommer notes. But in a year or so, he says, the vendors that lead the pack will be those that fit their packages with enabling technology "to allow continuous re-engineering within the finance function."

"I think it's a lot of hype that client/server is cheaper. I'm not convinced it's the way to go with corporate financial records."

DENNIS CROFT
IS director,
state of Florida

are you a
client client

Believe it or not, that's the jargon you'll run into when you start looking into client/server accounting products. Here's what it means.

If the system is built to accommodate most processing on the client, that's a "fat client" product. The "thin client" system puts most application logic on the server. This is a chief distinguishing factor among available packages.

A fat client system tends to require powerful desktop machines that are able to accommodate resource-hungry graphical user interfaces. Thin clients simply give a graphical look to server-based processing.

What's optimal is a system that allows the user to decide the most efficient platform for any given function. A function such as payroll calculations that requires sophisticated mathematical capabilities needs the support of a server. Less complex desktop integration functions, such as data analysis, should be placed on the client.

There are many nuances to the thin client/fat client debate. It's important to analyze vendor strategies to see where they stand.

Client/server players

Many vendors offer client/server financial software. We've listed some of the leading offerings, as determined by International Data Corp. in Framingham, Mass. All software runs on Intel/Intel-Parkland Co., IBM AS/400 or Sun Microsystems, Inc. servers, and all support PC interfaces.

Coda, Inc. Manchester, N.H.	Open MAS	Since 1993	Good international presence but small mind share in U.S.
Compucon, Inc. Rutherford, N.J.	Epic	Since 1990	Developed client/server applications from PC platform.
Dun & Bradstreet Software, Inc. Framingham, Mass.	Financial Stream	Half the modules began shipping in September; others to ship in 1994	Built-in work-flow functions set products apart; will run only on Sybase.
Fin/Mira Corp. Shakopee, Conn.	Fin/Financials	Since 1993	CEO and other higher-ups are former Computer Associates executives; object-oriented from ground up.
FourCom Software, Inc. Seattle	Enterprise	Since 1990	One of the first to come out with client/server software.
Kapre Software, Inc. Bedford, Colo.	Kapre	Expected in 1994	Started by former J.D. Edwards executives; object-oriented from ground up.
Lawson Software Corp. Minneapolis	Open Enterprise	Since 1993	Runs on Oracle, Sybase and Informal; aggressively moving client base to client/server.
Oracle Corp. Redwood Shores, Calif.	Oracle Financials	Since 1989	Has the longest standing offering; requires Oracle database.
PeopleSoft, Inc. Walnut Creek, Calif.	PeopleSoft Financials	Since 1992; most modules currently out; more due in 1994	Can be more expensive than rivals because development tools and first-year maintenance are bundled; runs on Sybase and Oracle.
Platform Software Corp. Irvine, Calif.	Platform-to-Sequel	Since 1993	EDI functions expected to be added to financial packages 1994.
Ross Systems, Inc. Redwood City, Calif.	Renaissance CS	Since 1993	Bought client/server tools and packages from a UK firm last year; has also ported DEC-specific packages to Unix. Currently supports Ingres and Reli, with Oracle and Sybase expected.
SAP America, Inc. Lisle, Ill.	R/3 Financials	Since 1992	Few U.S. sites in production; money-back guarantee is innovative.

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PRODUCT CHECK LIST

The following checkpoints are provided by *Tristan M. Hoag*, a manager of the Software Intelligence Group of *Andersen Consulting*, which provides financial and human resources competence and solutions expertise.

What platforms does the package provide support for and how are they supported?

Support for multiple servers, operating systems, networks, graphical user interfaces and databases is widely advertised, but make sure the combination you need is available. Also, vendors support multiple platforms in different ways. Some vendors use a gateway product. These gateways can add processing steps, slowing performance in high-volume, multiterm environments.

How are server processes addressed?

Many of today's client/server financial software products are sold based on the attractiveness of the GUI. But what large organizations really need are industrial-strength, configurable and manageable server processes. Common routines, report programs, interfaces and large mass-maintenance routines are often placed on the server.

Most vendors do not provide tools to design, build, test and maintain server programs. Instead, they focus on client code such as basic inquiry and update processing. Large organizations often need to place routines either on the server or the client; however, most customization tools produce client or server code, but not both.

How is distributed code managed?

Vendors have not fully addressed this area. The frequent lack of this type of ability can create frustration. Ongoing maintenance and upgrade efforts are complicated by large numbers of client machines that must be updated, tested and maintained. Ask the vendor how it will help you manage products and versions over a distributed wide-area network, which could involve hundreds of client and server processors.

Will one version of the product run on multiple platforms?

Many large users need to standardize operations over a number of plants, companies and business units. When that's

true, it would be far easier to buy just one version of the product rather than separate versions for each platform.

Even if the same product runs on multiple platforms, however, the vendor may release one platform at a time, which will exacerbate your update and version control headaches. If portability is provided by a certain database or tools vendor, you must also consider its platform direction and release schedule.

There's another important point when

dealing in multiple platforms. In their decision to focus on high performance, some vendors use stored procedures in the database management system to accelerate data access. This works well. However, different DBMSs have different methods of handling and developing stored procedures.

If financial software vendors wish to support multiple platforms, they must rewrite much of the stored procedure code on the server.

Can report writers, etc., easily access the data maintained by the application?

If you plan to integrate an end-user report writer, spreadsheet or executive information system with your new financial system, make sure the vendor has not limited access to the data maintained by the application.

Find out whether you must use the vendor's special software routines to access and update data.

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CASE STUDY

UCLA medical school finds right elixir

As information systems director Stephen Berry tells it, the one good thing to come out of a devastating fire two years ago at UCLA's Department of Medicine was a chance to redesign the department's cumbersome financial system. Financial data had been maintained on the university's central system. To access that information, users had to

download mainframe data to a terminal and then manually retype the information into the department's multiple databases. This unwieldy process was performed once a month, which made it impossible to stay current on funds the university had committed to the department.

However, the department's two VAX-

based database, the Unix workstation-based general ledger database and all the custom financial applications went up in flames, along with the billing system that linked the department's five buildings.

When it came time to rebuild, Berry envisioned a single database that the department's 250 PC and Macintosh users would access. In addition, he wanted to create a transparent link to the campus mainframe-based financial system, which maintained a separate, centralized record of the accounting activities.

Berry's team began by networking the five buildings' systems to one file server and one Sybase, Inc. database server. Then, using Powersoft Corp.'s PowerBuilder development tools, they custom-built clinical income, payroll and personnel applications.

Reasoning that they were programmers and not accountants, the team decided to purchase—rather than build—a client/server general ledger system. Their choice: FlexiWare Corp.'s Flexi-Ledger.

Flexibility comes first

Berry picked FlexiWare because it worked with his custom front-end interfaces and third-party application development tools, rather than those offered by the vendor. In addition to PowerBuilder, for example, Berry uses FormFlow, a forms processing package from Delrina Technology, Inc., a Canadian software vendor. FormFlow scans in the department's paper forms, adds necessary fields and points them to the database.

"We used [FlexiWare] as our core system on our database server, but we could define the roll-up structure we wanted and their system would maintain that structure," he notes.

Berry says client/server in general and FlexiWare in particular have helped to rectify many of his department's problems. For example, downloads from the campus mainframe are now much smoother and can be performed daily instead of monthly, which lets the department commit funds to its general ledger system in almost real time.

The client/server implementation cost less than \$1 million and took a little over a year and a half. Berry says that time frame could have been shortened because his team expected that the network design and implementation would be quite complex. "We didn't really begin application development until the network was finished," Berry explains.

In practice, the networking effort was not that complicated. Next time, he says, "I would undertake network and application development simultaneously and bring the system on-line even faster."

Now, less than two months after the UCLA system went on-line, Berry will have the chance to do just that. He's recently been promoted to director of IS at the School of Medicine at the University of California, San Francisco. His mission there: Replicate the UCLA client/server system.

In financial accounting circles, there's a lot of talk these days about reengineering. About Client/Server technology. And about Open Systems.

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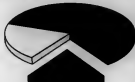
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JOURNAL



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is fiddling around
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November 1993

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CLIENT/SERVER JOURNAL

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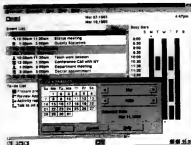


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CLIENT/SERVER JOURNAL

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EDITOR'S NOTE

Maryfran Johnson

**Defining client/
server seems
to be a new
kind of parlor
game for the
industry**

One of the most unnerving questions I am asked these days is "How do you define client/server?"

Even my brother, Garry, who manages a carpet store in Albany, N.Y., and truly shouldn't care, wanted to know. Now, the only technology used in Garry's business is a venerable old Digital VAX 11/73, which the head of the company refers to as "The Brain." Seriously. So we didn't have a lot of common ground here.

What I told my brother went something like this: "It's basically big computers linked with little computers, exchanging information, only now the little computers can do a lot more of the work because they're more

powerful, more affordable and easier to use."

Defining client/server seems to be a new kind of parlor game for the industry. I've heard it described as a style of computing, a collection of technologies, an architectural platform, an application development method, a systems integration solution, a re-engineering tool and — heaven help us all — a paradigm shift.

The one point everyone agrees on is that client/server is the opposite of mainframe-centric or host-based computing. But mainframes and data centers absolutely have a role to play. (Check out our "Data Centers to the Rescue" story in this issue.) Gartner Group's Jim Cassell has a wonderful image he invokes when the talk turns to replacing mainframes with PC networks. He likens the move to a farmer replacing his team of oxen with 10,000 chickens.

Another place to sample a multitude of views on this subject is the comp client-server discussion group on the Internet. A few weeks ago, Ravi Kalakota of the University of Texas' department of management science and information systems cataloged a series of different definitions for client/server. "This technology should not be viewed as a silver bullet but as a concept of immense potential if applied correctly," he wrote.

"Client/server has so many different flavors. It won't look the same everywhere you go," adds Joyce Young, director of decision support systems at Helene Curtis Industries. "That's why it's so hard to define — there's no textbook."

While there may be no textbook on client/server, what we hope to provide in *Computerworld Client/Server Journal* is a chronicle of this technology as it unfolds — from the user's point of view.

This issue, for example, includes stories about the importance of managing user expectations during client/server projects and how organizations as diverse as Helene Curtis and Columbia University benefit from the new technologies and learn from their mistakes. Also featured are exclusive interviews with Microsoft CEO Bill Gates and Sun Microsystems CEO Scott McNealy.

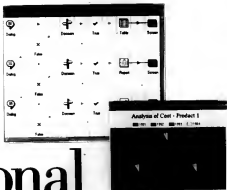
In the end, defining client/server is far less important than using it to your company's best advantage. Despite any attempts I've made to define it, only one person has ever been satisfied with my answer. But maybe Garry was just humoring his big sister. ■

Maryfran Johnson

Computerworld CLIENT/SERVER JOURNAL 3

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PERSPECTIVES

A QUARTERLY REVIEW OF CLIENT/SERVER VIEWS AND EVENTS

Reality Check

What does client/server really mean for IS shops?

That question was posed recently in an Internet discussion group by Steve Cruft, a database system administrator at the California Department of Water Resources, which is transplanting train order maintenance technologies to client/server.

Some of Cruft's observations thus far include:

- Smaller application development is pushed out to the end user, and often there is no need to rely on IS. This area will likely be the source of the greatest productivity gains.

- Options for tools are far and few between. Rather than having 15 vendors and choosing one, it should outsource for customized and user tools.

- The IS department must become more of a facilitator than a controller. This means more planning, a shift in responsibilities and a learning curve to keep data models accurate. The advantage is a productivity boost for end users.

- The IS department must become more of a facilitator than a controller. This means more planning, a shift in responsibilities and a learning curve to keep data models accurate. The advantage is a productivity boost for end users.

Cruft can be reached at steve@water.ca.gov via the Internet.

C&NW: A Freightload of Savings and Fewer Errors

When Chicago and North Western Transportation Co. (C&NW) needed to move invoices faster and more accurately, it turned to client/server. The move saved \$1 million, mainly by eliminating 30 invoicing-related jobs.

C&NW also reduced errors by 50%, increased productivity and automated its billing system with an environment that links more than 100 users over its Token Ring-based network.

As the eighth largest freight railroad in the U.S., the \$1 billion company moves more than 40,000 carloads daily of items such as coal, paper and grain. Tracking and billing were



C&NW Transportation reduced billing errors by 50% with client/server.

"mistake-prone challenges" before C&NW installed the client/server system, officials said.

The system includes Tricord Systems, Inc.'s PowerFrame 486/33 enterprise servers, Microsoft Corp.'s SQL Server running OS/2 2.0 and Novell, Inc.'s NetWare v3.11.

The cost of the project was recouped in one year, said Jeff Liggett, C&NW's vice president of revenue and disbursements accounting. C&NW can now match most of its billing transactions to existing data and billing information in its SQL database. The billing system automatically generates 80% of 1,200 invoices composed each day, compared with

the 20% done on C&NW's IBM 3090 mainframe.

While it has improved business, C&NW's move to client/server was not easy. "The first two weeks, we had a lot of downtime, since we brought a lot of new products together at one time," Liggett said. "If we were to do it again, we probably would have done more user and volume testing."

"At the time the system was designed, our Novell network only had 30 nodes, but we planned on 100," he added. "When we rolled the system out and got over 30 users, we started having problems." ■

Written by David A. Kelly, a free-lance writer in West Newton, Mass.

Who Cares About Software Standards?

A survey of 50 Fortune 1,000 companies shows that

50%

already have standards in place today and

66%

felt their use would increase during the move to client/server

Source: Research International, Inc.

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MASS/2	optional	standard	standard

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Surviving on the Cutting Edge

JIM STIKELATHER

Stikelather is director of systems development at Kash n' Carry Food Stores, Inc. in Tampa. His Internet address is stike@tnk.com.

As the American humorist Dun Marquis (1878-1937) once observed, "An optimist is a guy who has never had much experience."

With that in mind, consider the confluence of today's technologies — client/server, object-oriented, inference, neural networks and functional programming — that are being used to build the information systems of the future.

While the media and vendor hype is a little premature, the good news is that these technologies really do work. The bad news is that for most of us in commercial IS, the potential for failure is very real and very high. Why? To paraphrase the infamous Clinton campaign sign, "It's the people, stupid!"

These technologies and the information systems that can be built with them are a paradigm shift in the truest sense. And nothing can prepare you for the intellectual, cultural, organizational and people upheavals this kind of shift will inevitably cause.

Human beings as a rule abhor change, and the future of IS is full of change. The users we service are changing. Their jobs are constantly re-engineered and redefined. They have become more knowledgeable, capable and experienced in the IS arts — and therefore more demanding and less tolerant.

The nature of business has changed. It is international. It runs 24 hours a day. It is real time, and old boundaries are gone. Customers, suppliers, governments, communities — even competitors — demand access and contribution to the information used to run the business.

In the first chapter of *Information and Logic*, Keith Devlin tells a story about a 15th-century iron worker. When asked "What is iron?" he would talk about its attributes (hardness, melting point, etc.) and what he could do with it. Not until modern atomic theory, how-

ever, could someone truly answer the question "What is iron?"

Today, we should be asking "What is information?" Until we understand information as well as we came to understand iron, we will not be able to deliver on the promise and potential of these new technologies.

Perhaps even riskier for future information systems is our lack of understanding about cognition: how humans recognize, assimilate and use information. The new information systems will be intelligent, real-time simulations of the business. They will make many of the recurring business decisions and identify patterns and changes, drawing a human's attention to apply the creativity, analysis and planning skills needed.

The technologies, products and services to support the new systems are immature and the techniques for applying them even less developed. Increasingly, we need developers who are businesspeople, analysts, designers, programmers and testers all rolled into one.

The next five years will be spent developing common knowledge and structure toward applying this technology. Until then, we will be feeling our way around, like someone searching for a black cat in a darkened room where there is no cat. Yet we will be hearing the consultants, the vendors and even the trade press shouting, "I've got it!"

For the last two years at Kash n' Carry, we have moved forward with these technologies. In a nutshell, the technologies worked, and the people had difficulty. We had high turnover, we lost productivity, we spent time inventing technology and methodology instead of addressing problems.

Still, we have been successfully and rapidly delivering award-winning systems, though only with pieces of the technology available. Only now we know how much we don't know. ☐

Human beings as a rule abhor change, and the future of IS is full of change.

Sex, Lies and Selling Software

In this brave new world of open systems and client/server computing, the decisions involved with purchasing software and tools are more difficult than ever.

Decision makers often lack the experience to judge the quality and longevity of client/server technology. This becomes especially tough when users are dealing with a market in transition, where every software vendor is positioning its products in line with the latest trends.

I recently took part in the software evaluation process at a medium-size manufacturing firm that was looking for client/server software to implement an integrated manufacturing system. At least seven major independent software vendors lined up at the door, eager to do business.

Yet what I saw during that evaluation process made me fearful for companies trying to make software decisions that can mean life or death for their organizations. One vendor spent more than two hours describing the sophistication of its client/server software. The pitch was replete with all the right jargon: It was object-oriented, complied with Posix specifications and included mention of the Object Management Group, the SQL Access Group and X/Open Co.

Not until we started asking implementation-oriented questions did reality arrive. It turned out that the software had not actually implemented any of these sterling standards. Yet the vendor kept stressing their importance and kept promising to support them when it was feasible... someday.

Then the critical question: How many customers are using this software and for how long?

It seems there was one customer about to begin using this product. And naturally, this vendor was very eager to partner with customers on development. What

"partnering" meant here was "Help us complete our development work, we've fallen behind." Unless your organization is prepared to accept a major risk in order to have strategic software that no one else has, stay away from systems without customers.

My advice is to purchase a product that already has more than three customers with several years of experience under their belts, if possible. But if what you are trying to do simply can't be done with well-established software and using this new stuff may solve a key problem for you, then take a chance on it.

Another land mine buried in the software vendor community these days comes labeled with the words "object-oriented." Like client/server, the notion of object orientation is so hot that no software developer dares to ignore the 'O' word.

Vendors that are bedding their bets will say their technology is "object-based" or "object-like" — though that doesn't mean much because there is no consistent definition of object orientation. What users should look for from object orientation is flexibility, speed of development and the ability to reuse or link components of software without additional programming.

The bottom line is this: Ask as many questions as possible about the flexibility of the tools and how they make application creation easier. Remember that vendors are not going to acknowledge problems or point out product deficiencies unless you ask.

When vendors talk in extremely technical terms (a ploy sometimes used to intimidate you), make them translate until you do understand what they are saying. Then talk to other customers with experience using the product and, where possible, visit some of those companies to see the software in action. ☐



JUDITH HURWITZ

Hurwitz is president of Hurwitz Consulting Group, Inc., a Watertown, Mass., consulting firm. She can be reached on the Internet at huwrit@world.std.com.

My advice is to purchase a product that already has more than three customers with experience under their belts.

Technology Training From The Top Down

When companies begin training staffers for client/server with choices on how to use specific development tools, the effect is akin to "building a house starting with the plumbing," says F. Chance Granger, a senior analyst at the Federal Reserve Bank in Richmond, Va.

"The most experienced client/server managers indicate that a top-down approach should be taken when introducing newcomers to the new technology," said Granger, who recently surveyed 60 IT executives for his University of Virginia's master's thesis on client-server skills and knowledge.

"A training plan must narrow from knowledge to skill," Granger explained. "Knowledge of client/server architecture, cooperative processing, distributed database architectures, telecommunications and networks ranked as the most important knowledge base for developers to have."

Ranked as the most important skills were prototyping, PC programming and GUI design.

"A plan to educate personnel should define long-term, intermediate and short-term knowledge and skills," she said. Suggested topics for such training include the following:

- Long term (one to two years): PC and workstation use, GUI tools, data modeling and design.
- Intermediate (six months to one year): Distributed, cooperative and client/server architectures, relational technology, and Windows use.
- Short term (six months or shorter): Programming and design skills.

Tower of Babel

Large companies working diligently to maximize their newly installed client/server systems are finding that a lack of standardized distributed data dictionaries is a problem with no easy answers.

As departmental information systems groups build applications today, many of these groups do not have a core competency in data modeling, said Jeff Tash, president of Database Decisions, Inc., an information technology consultancy in Waltham, Mass.

"It is creating a Tower of Babel situation in IS," Tash said. "The No. 1 area where IS can add value is coordinating and managing data models throughout the organization."

In a manufacturing environment, for example, a data dictionary might catalog abstract representations of inventory items, thus ensuring consistency in record-keeping across the organization.

"Companies are swimming in a sea of synonyms and homonyms; different words have different meanings," Tash said. One part of an organization may be modeling data in one-to-many relationships, for example, while other parts are modeling data on many-to-many relationships.

While companies such as Sybase, Inc., Oracle Corp., Informix Corp., IBM and Digital Equipment Corp. offer some distributed data development tools, Tash said there are still few viable client/server prod-



ucts able to fill the gap left by older, proprietary data dictionaries such as IBM's Data Dictionary/Direct or Digital's CDD.

To ease the Tower of Babel problem, Tash recommended that IS managers try the following:

1. Coordinate the definition of data. If a company is using five different suppliers, then insist on one process to describe supplier definition across the organization.
2. Provide an electronic bulletin board to show which data exists and the quality of that data. This

also encourages corporate-wide data exchange, which is essential in building and maintaining data definitions.

3. Develop dual databases containing two sets of data models. One set would focus solely on production data, while the second would focus on time interval data such as aggregates and summaries.

"The second data model can provide IS with data snapshots. This is essential to spot trends," Tash said.

Dave Hudson, director at market researcher Standish Group International, Inc. in South Yarmouth, Mass., noted that "the whole issue of distributed environments has a long way to go."

Hudson defines "first-generation" client/server as one server plus several LANs. But it is in the second generation, he added, that greater levels of distribution across several server nodes will become critical to the organization. □

Written by Sally Cusack, a freelance writer based in Marston Mills, Mass.

THE FIFTH WAVE



The Changing Skill Set

Underlying the themes of client/server computing are the quick delivery of applications and the need to make the user interface attractive by using new technology on the desktop.

The shorter, more flexible life cycle of applications plus the earlier interaction with users in this new environment calls for a broadening of some skills and a replacement of others.

In a purely client/server installation, for example, there is no need for console operators because an increasing number of applications will be on-line transaction processing systems. Keeping these new application systems in step with business changes also requires different types of application programmers.

The former systems analysts from conventional data center environments — once responsible only for the care and feeding of the operating system — today must cope with middleware, back-end server programming and database administration.

One fallacy of client/server is that only front-end programmers are necessary and that a fancy graphical front end means client/server. Yet just as critical to client/server is the back-end processing, which must supply the logical and physical design of databases, monitoring and fine-tuning for better performance and tracking naming conventions.

Increasingly in demand are LAN experts, who handle tasks such as configuration management, troubleshooting and back-up and recovery functions. Also necessary to these new environments is another type of programmer: a tester of GUI programs. This new testing is different and more rigorous than Cobol program testing because most GUI programs will not have the sequential application navigation that Cobol programs do.

The ratio of programmers to testers also changes. If you have had 10 Cobol programmers and one tester for the programs in a conventional environment, you will probably need two programmers for every one tester for GUI-based applications.

A number of client/server software vendors claim a tenfold productivity increase in application development, implying that one programmer can replace the 10 you had before. This is wrong. Experience with our clients shows an increase of about twice the development productivity, not a tenfold leap.

Last but not least, the help desk has emerged as a crucial function in client/server environments. It must be staffed to provide three levels of support.

The first level of support answers very basic questions. At one company, former kindergarten teachers were hired for first-level support because of their patience in answering the same questions over and over again.

At the second level, help desk staffers should provide answers to more detailed and application-specific questions, while third-level support covers application- and technology-specific questions. In the past, vendors were called on to provide this second- and third-level support, but in today's multivendor world of client/server, it is no longer apparent who to call.

Forging strong partnerships with key vendors is one way to resolve support issues. One of our clients, frustrated in his attempts to solve a problem that involved either Windows, the database engine or the operating system, packed up the machine and sent it to one of his partners — Microsoft — saying, "Solve this and come back to us." The vendor solved it.

That kind of partnership should embody the true spirit of open systems and the client/server environment. ■



SHAKU ATRE

Atre is president of Atre Associates, Inc., a consultancy in Port Chester, N.Y., that specializes in client/server technologies.

The help desk has emerged as a crucial function in client/server environments.

The truth about

Before you decide what client/server platform is right for you, make sure you know what's true, and what's Not True.

Fact: the OS/2[®] client/server solution preserves your current hardware and software investment, accessing your mainframes, minis and PCs when necessary and bringing their power and capacity to the desktop level. Fact: the Windows NT[™] solution is based on PC servers and desktops and doesn't embrace all your existing resources. That could mean porting applications and data. The only plus that offers is the cost of porting *plus* the cost of additional PC servers.

Fact: OS/2 2.1 runs DOS, Windows[™] and more than 1,200 native OS/2 applications. With LAN Server 3.0 or Novell[®] NetWare,[®] OS/2 supports IBM, Windows, OS/2 and Mac clients. *Fact:* it's not likely NT will support all your existing applications. It won't run existing 32-bit applications like WordPerfect[®] 5.2 for OS/2 and Lotus[®] 1-2-3[®] for OS/2. It will require additional software to support DOS, OS/2 and even Windows clients. Worse yet, *InfoWorld* sources

The OS/2 client/server solution exploits your existing hardware and software investment. There's no telling how much the NT solution could cost you.



▲ All this monkeying around with NT raises lots of questions. OS/2 has the answers, report that Windows 3.x applications run 20% slower under NT than they do under OS/2 2.1!

Fact: OS/2 delivers powerful, reliable, client/server applications for data storage and retrieval (DB2/2[®], Oracle 7[®], InfoPump[™]), communications (Communications Manager/2, REMOTE OS[™], TalkThru[™]), transaction processing (CICS, IMS Client Server/2 V2), comprehensive network management (LAN NetView[®], CA-UNICENTER[®],

Introducing
Version 2.1

OS/2

client NT

Domain/DACS, AlertView, Foundation Manager), and more. Fact: The NT strategy is still Not There, and neither are native client/server applications.

Fact: OS/2 is committed to the industry-accepted Distributed Computing Environment (DCE) standards of the Open Software Foundation. Fact: NT is NoT.

Fact: NT still Needs Time to



▲ If no novel first-generation slingshot? OS/2 is second-generation solid.

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If you're looking for a cost-effective, secure, high function client/server solution today—Not Tomorrow—then OS/2 is for you. To order or to find out more about OS/2 2.1, call 1 800 3-IBM-OS/2. In Canada, call 1 800 465-7999. OS/2 2.1 is also available at your local software dealer. And that's a fact.

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Dear Diary

A Two-Year Journey to Downsizing

It's Oct. 15, 1993 — a hot, sunny day in central Florida — and appraiser Beccy Harding is standing in the heat in front of a house with an AST Research, Inc./Grid Systems Corp. Convertible PC. She is collecting data to determine the parcel's taxable value for the Orange County Property Appraisers (OCPA) office in Orlando, Fla.

When Harding finishes, she will touch a single icon on her Windows display, sending the information via cellular radio back to the OCPA's main database for automatic updating. If anything should go wrong at home base or if her supervisor has a question, Beccy can send and receive electronic mail in the same fashion.

At the OCPA's office, supervisor Bob Hahn is analyzing an agricultural area with the assistance of a digital aerial image system. The system displays square mile images of Orange County in 24-bit color. The images are so detailed that Hahn can view a subject property and gather informa-



Mobile computing from his laptop is one of the downsizing benefits for Eric Singleton, IS director at Florida's Orange County Property Appraisers office in Orlando

tion as if he were on-site.

Nearby, Carol Walker, manager of cadastral mapping, is busy accessing digital images of property deed documents. These document images, along with more than 1.5 million others, are stored in an optical imaging system. As with all other systems here, it is available on the network to the entire user base.

Things weren't always this wonderful. Two years ago, the information technology division and our client base were operating on an IBM 4381 and dumb terminals, costing the county \$1.8 million annually to maintain obsolete technology. Yet we increasingly felt the need for color imaging and an open architecture.

Downsizing all processing to a PC LAN environment could open the door to acquiring these new technologies at a realistic cost. But we had to create our own road map, for there was little data available on such a large downsizing project. This is an account of that 24-month journey.

BY ERIC SINGLETON

JOURNAL OF PROJECT 9000

LATE SPRING 1991

After four weeks of discussing the idea to downsize, the staff has agreed to move ahead, and top management has approved the project.

Plans are set for a network architecture, and all acquisition orders are issued for a plethora of hardware and software.

Novell, Inc.'s NetWare is purchased and certified NetWare engineers hired. When building a large microcomputer network, it pays to have the proper talent to design and support it.

Hardware and software are installed and configured. Mainframe processes are analyzed.

The completely redesigned systems must do everything the mainframes did and more. Methodology for backups, version control, batch processing, CICS support, etc. has to be developed.

All new PC operations will have to be supported, too.

This massive effort is an opportunity to re-engineer the business. We will carefully study each department, asking questions such as "What does this department do? Why does it do it that way? Is the department itself even necessary?"

SUMMER 1991

Mainframe process analysis is completed. Instead of sheer duplication of these processes, improvements have to be made where possible.

Four and 8mm tape drives should be used for backups, not round reels. Cost-effective, high-speed laser printers can replace huge



footprint, high-speed impact printers. Due to font and spatial controls possible on the laser printers, all batch reports print on 8½ by 11-in. paper instead of green-bar. Further, the reports are printed on three-hole-punch stock, so they fit neatly in three ring binders.

Software selection process is initiated. Cobol legacy systems are being converted.

Computer Associates International, Inc.'s CA-Realia is selected as the target product for the conversion. CA-Realia is able to emulate the traditional editing packages (TSO/ISPF) and CICS interfaces so that the Cobol staff does not have a monumental learning curve.

Novell's Btrieve is chosen as the database record manager.

JUNE 3

The staff is assembled today into teams for database, network, PC software and Cobol source-code conversion. Information technology manager Tom

Applegate is working records data about an Orlando, Fla., law office building on her pen-based computer.

Rehik will coordinate all of the teams, as well as assist me in directing the project.

Not only will the Cobol source code be downsized and converted, but other projects, such as optical imaging, will also have to be installed. These systems must be up and running in the same time frame in which the downsizing is completed.

JUNE 14

Each team is assigned tasks. One of the largest is the conversion of the legacy Cobol systems: More than 700 batch programs and 250 on-line programs have to be converted to work effectively under CA-Realia, our chosen compiler.

The way our office works, we have to have the new systems up and running in one year or we will have to wait an entire extra annual cycle for deployment. If we miss our launch window, the project's success will be seriously jeopardized. We also agree to terminate the use of the 4381 by a certain date.

We develop a strategy to break up the Cobol systems into conversion groups.

Each group has to be ready by a certain date because that is when the system is needed for production. We will deploy the system as it becomes ready, not after everything is converted. This is how we will bring everything in on time.

(Continued on page 16)

JULY 31

The first significant batch jobstream is converted! But the job that used to run for one hour on the 4381 mainframe now runs for more than 10 hours on the 486 batch server. Fear strikes us. Several months into the project and our first real conversion has yielded terrible performance. Should we stop now and save our careers?

AUGUST 22

Solution found! By running the batch jobstreams on a separate server and installing a fiber-optic backbone between the batch and database servers, run times decrease to 25 minutes. Faster than the mainframe!

FALL 1991

A staff member resigns, convinced the process will never work and that mainframes are the only future....

The remaining staff members are largely computer science majors with several years of ex-

SEVERAL MONTHS INTO THE PROJECT,
AND OUR FIRST REAL CONVERSION HAS
YIELDED TERRIBLE PERFORMANCE.
SHOULD WE STOP NOW & SAVE OUR CAREERS?

perience and confidence enough to conquer the world. I don't expect any more resignations.

The conversion process is honed so each program is run on the mainframe, converted and run again on the PC. Then results are compared, and the next program is processed.

A key step in this conversion process is testing against duplicated database management systems on the mainframe and PC database server. With this technique, we are guaranteed to find both accuracies and inaccuracies.

Fiber-optic cabling is introduced to the network architecture, where a backbone among all servers greatly increases data-sharing performance.

We want a large data highway among servers, and Thomas Conrad Corp. systems are chosen to achieve the bandwidth necessary to satisfy our existing need and yet still leave room for expansion.

OCTOBER 28

A document imaging system is brought on-line by the PC software team. Our parallel development/deployment process allows us to install, test and release the product, write documentation and train end users on the system during legacy systems conversion.

Hewlett-Packard Co. optical-disc jukeboxes are installed to increase storage capacity of images.

NOVEMBER 8

Digital aerial imagery is discussed as a new concept that would allow end users to study property parcels from their desktops rather than from the field.

We now have the network to support the very systems that were unaffordable or unavailable on the mainframe.

Ground-level imagery is discussed as a supplement for the aerial imagery system.

Strategies for a low-cost pilot are developed.

DEC. 10

The first critical group of Cobol programs is converted!

After hanging our heads against the wall working out the

This aerial photo showing digital imagery of Winter Park, Fla., can now be called up at an appraiser's desktop



kinks, the second group goes much faster.

The information technology staffers ask me how they are doing with the timeline dates on Cobol program conversion. They are on schedule, but barely. (The day comes later when I have the joy of telling them they are finishing four months ahead of schedule.)

WINTER 91-92

The development testing team reports less than adequate performance of on-line CICS modules.

The current configuration creates very heavy network traffic, which can slow down performance of the application systems considerably. The solution? We create a 3M-byte RAM disk on each client node and download all appropriate CICS modules to an individual user's machine during login.

A system is built that reads the Novell ID of the user and loads only those modules necessary for them to sign on. All other systems are accessible via Windows.

Now, network traffic is low, and screen-to-screen response time is blazingly fast.

FEBRUARY 3

Design starts today on the aerial and ground-level imaging system.

Aerial and ground-level imaging are implemented as a pilot system and proved technology, respectively. The projects occur in parallel with the downsizing, but after being developed, both are put on hold by top management.

SPRING 1992

A LAN interface to the wide-area county network is planned and executed. Meanwhile, a TCP/IP gateway is put into place and tested, performing very well.

One advantage to this expansion

On-line digital images of property let appraisers perform various analyses that were previously impossible

is accessibility for PC users to the countywide geographic information system (GIS), which is almost completed. But to use the GIS, a high-powered, expensive (\$30,000) system is necessary.

I'm considering the possibility of working with the GIS software vendor, Geovision, Inc., to assist us in writing a PC version of its software. If such a system can be developed, hundreds of existing PC network users will be able to access the GIS.

APRIL 31

In San Antonio at a Geovision conference, I reach a verbal agreement with Doug Seaborn, president of Geovision. Work will start on a co-development project that eventually produces Vision Query, the PC platform Geovision product.

MAY 7

The document imaging systems that are on-line and in production are beginning to show signs of performance problems. We begin thinking long-term about the projected life of the product at our site. (Eventually, we do move ahead with a new system.)

SUMMER 1992

Land heli The conversion of the Cobol legacy systems is completed and tested. We are ready to start running our annual processing jobs, the calculation of more than \$33 billion in property value.

Although the system has been tested to the nth degree, top manage-



ment wants to keep the mainframe as a backup throughout the season in case "anything goes wrong."

Vision Query Release 1.0 begins testing at our site. The product shows extreme promise.

FALL 1992

Election season, and this is an elective office. Our chief executive officer is the elected official, and the race is on...

The 4381 mainframe system has officially been shut down, as annual cycle processing ends in October.

Processing on the new downsized systems is a success.

NOVEMBER 3

The document imaging systems are stable, but we hunger for higher performance to keep up with rapid scanning of documents. So we start searching for a new document image system.

WINTER 92-93

Richard Crotty, newly elected property appraiser, takes office. Crotty decides to immediately move ahead with aerial and ground-level imaging, giving new life to the projects.

(Continued on page 18)

(Continued from page 17)

He also asks about the possibilities of gathering data in the field with portables. This initial discussion leads to the development of "Project Field Link."

SPRING 1993

Hired Alan Mariotti, enterprisewide NetWare engineer — one of the few certified NetWare experts in the state and a consultant to our project.

As the network grows and application systems increase, we pay closer attention to education and training.

Our training budget is usually set at 5% to 10% of the overall information technology budget. During the downsizing, this figure was at the high end due to the flood of new technologies the staff had to learn.

Our strategy is to have a key non-information technology staffer in each department, a "super user" supporting the others in his department. This person's skill set falls between an information technology staffer and an end user who has knowledge of how to use a system.

APRIL 14

Aerial imaging systems are fully in production. Stored on optical discs accessible on the network via the HP jukeboxes are 910 square miles of 24-bit color images. Other agencies have started to visit, each with an interest in our new technology.

The Orange County Sheriff's department and the Environmental Protection Agency (EPA) both visit. The EPA was interested in how such a system could be used to identify tree types at the desktop. In a matter of seconds, a few dying trees are located in a square mile of living ones.

In addition to using the technology for similar studies of trees and shrubs, the Sheriff's department could zoom in on top of houses and study their positions if they are planning an unannounced visit.



FINANCIALLY,
WE HAVE COME
OUT AHEAD...



Geovision, Inc.'s PC-based software shows how property parcels can be color-coded to display attributes such as comparable sales value.

EARLY SUMMER 93

Work begins on Project Field Link. We have designed a system that will take advantage of pen-based computing, Windows and new advances in cellular radio networks. Testing of components of the system has already begun, and the test results shape our strategy.

Development is occurring in very fast strides as the flexibility of open systems is increasingly felt by the staff.

Object-oriented programming systems have cut into the world of new system development in Cobol. Visual C++, Visual Basic and CA Clipper have joined the ranks as new key development tools.

LATE SUMMER 93

The annual cycle repeats, and Tom Rebbi prepares to guide the support team through another assessment season. Ground-level imaging is brought into production, as field personnel armed with still-frame video cameras take pictures that are converted to digital images.

TODAY—

Project Field Link has become a reality. Fifty AST Research/Grid Systems Convertible pen units allow data gathering from the field, where property appraisers stand in front of the subject property.

A quick touch of pen in screen and data is transmitted live to the production data files on the home system.

Financially, we have come out far ahead. Our first year realized an \$800,000 reduction from a budget of \$1.8 million. Subsequently, we have seen other dramatic gains as we have applied our in-house knowledge and used the tools on hand to build new systems.

Project Field Link will reduce the overall budget by more than its cost in the first year of operation. There are many examples like it.

The user community has adapted amazingly well to such rapid deployment of multiple technologies. As I watch a client using our products under Windows on a 17-in. display, I realize that for the client, it had to be all or nothing.

Technology is unforgiving, and we have learned that in order to install positive change so quickly on our client base, we have to relentlessly educate ourselves to not only keep up but also look ahead. ■

Singleton is the IS director for the Orange County Property Appraisers office in Orlando, Fla. He can be reached through his CompuServe ID at 72274.3110 or via the Internet at 72274.3110@compuserve.com.

Prime-time Client/Server

Interactive TV brings high tech to living rooms *By Ted Krum*

Systems vendors portray client/server technology as a tool for re-engineering customers' businesses, but applications now under development may do far more: They may decimate entire industries.

The nation's leading computer and communications companies are building prototype interactive television networks that will provide flexible entertainment and retail services directly to consumers. These networks will bypass the normal channels such as chain stores or catalogs.

The first systems coming on-line at year's end, for example, will allow cable TV subscribers to view popular movies any time they choose. Customers will simply use their remote controls to order films from server clusters run by their local cable or phone company. This new capability upstages video stores' businesses.

"By late '96, the top 50% of cable businesses will be running 50% of their traffic through fiber optics," said Ray Katz, who covers the cable industry for Lehman Brothers, Inc. in New York. "That will be enough [for interactive services] to have a significant impact on the bottom line."

For one of the first interactive TV networks, Time Warner, Inc., the nation's No. 2 cable operator, is equipping 4,000 homes in Orlando, Fla., with cable boxes designed by Silicon Graphics, Inc. (SGI) and built by Scientific Atlanta, Inc. in Norcross, Ga.

"There's no way to tell right now what consumer demand for these services will be," said Robert Clark, director of media servers at SGI. "The electronic superhighway is be-

ing pushed by entertainment and consumer products companies that want to cut their distribution costs and retain a bigger share of the customer's dollar."

Katz's late 1996 milestone falls within these planning horizons.

STILL WARY OF FUTURE

Yet Clark discussed the future cautiously. "Even after we turn on the switch in Florida this year, marketable solutions for consumers will still be at least two years away," he noted.

Clark said that although the cable companies "are giving us a cost ceiling of \$300 per unit" for the cable boxes, they will have the processing power of a midrange box, complete with a RISC microprocessor, a few megabytes of RAM and special hardware for security, video compression and three-dimensional graphics.

Other technology companies, including Intel Corp., Microsoft Corp., Hewlett-Packard Co. and Motorola, Inc., are developing similar offerings with an eye to someday placing their products in every household. Video game companies such as Sega International and 3DO Co. are developing interactive TV products to hedge the potential threat to their businesses.

Despite all the untried technology at work in interactive cable systems, some of the greatest risks fall outside the engineering realm.

"Businesses will use this infrastructure for high-speed networking and to reduce their phone bills by bypassing the local phone company," Katz noted. ▀

Krum, based in Stamford, Conn., conducts independent research and consulting on computer graphics.

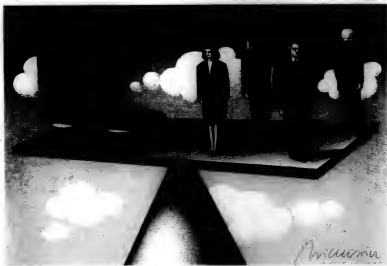


The interactive TV screen in this mock-up image displays one type of interface

INDUSTRY ISSUES

CONFUSION REIGNS OVER **COSE**

Can four fierce rivals overcome the perennial politics of the Unix business?



BY FRANK HAYES

Eight months after its launch, the Common Open Software Environment (COSE) is shaping up as a technical success—but a marketing fiasco.

The project by IBM, Hewlett-Packard Co., SunSoft, Inc. and Novell, Inc.'s Unix System Group to create a standard Unix platform may be well on its way to official acceptance by the X/Open Co., an international standards consortium. But users said they still have not figured out exactly what COSE is or how it is likely to help them build client/server environments.

"Even today, none of the vendors I talk to have even heard of COSE," said Gail Levesque, manager of special projects at Monadnock Paper Mills, Inc. in Bennington, N.H. "Whoever is driving COSE, they've got to be able to articulate the benefits."

Jim White, vice president of technology planning at Charles Schwab & Co. in San Francisco, agreed. "There's a lot of confusion out there," he said. "A lot of people are beginning to look to X/Open [for standards]. Some clarity would be nice."

EMPTY PROMISES

The confusion is hardly surprising. Since 1987, users have endured a deluge of Unix "unification" plans from AT&T, the Open Software Foundation (OSF), Unix International and the IB-tied Advanced Computing Environment, or ACE. All of them promised standardized user interfaces, uniform systems management and common programming interfaces. None of them delivered.

Then COSE made its debut last March, with all of the industry's leaders united under a single banner to jointly develop a common Unix "environment" spanning not only the desktop but also eventually networking, graphics, object technology and systems management.

"It's the right time, the right circumstances," said Rikki Kirzner, a principal analyst at Dataquest, Inc. "And let's give credit where it's due

—this wouldn't have happened without Microsoft."

The competitive threat of Microsoft Corp.'s Windows NT operating system, released in August, is seen by many as the true driving force behind the development of COSE's Common Desktop Environment (CDE). This "common Unix dish-bow" promises to integrate a mélange of existing products and services, such as the OSF/Motif graphical user interface and SunSoft's ToolTalk software, to produce a user interface that looks and feels the same across various workstation platforms.

Integral to the entire effort is X/Open, which is pumping up its public presence on several fronts.

Last month, Novell handed over the Unix brand name to X/Open in a

highly publicized move that makes X/Open the official referee for industry-standard versions of Unix. In September, X/Open was tapped by a group of 75 Unix vendors to shepherd into standardization a comprehensive set of more than 1,000 Unix application programming interfaces (API). The common API effort is intended to eliminate the incompatibilities among multiple Unix variants.

For their part, users seem confident X/Open can carry off its increasingly high-profile role. "There are a lot of high hopes, and X/Open has probably done a more complete job than anybody to date," White said.

Alan Dickman, a member of the technical staff at Bell Communications Systems in Piscataway, N.J., agreed. "X/Open is up to supporting it. It's up to the vendors to decide if this is worth it to them."

STATS

NUMBERS: X/Open Co.

FOUNDED: In 1984 by Bell NH Information Systems, Inc., CCL, Siemens AG, Olivetti and Nixdorf.

MEMBERSHIP: Fourteen "shareholder" companies that pay \$500,000, along with 13 system vendors and 27 independent software vendors that pay \$15,000 to join X/Open's Independent Software Vendor Council. Vendors pay an additional \$25,000 to participate in the CDE working group.

USERS: comprise 56% of X/Open. The 77 end-user companies each pay \$22,500 to join the user council.

MISSION: Began in 1984 as an organization of European computer system vendors, focusing on practical requirements for open systems. A U.S. office opened in 1987. In 1989, the mission broadened with the launch of its first "X/Open" user requirements survey to help vendor members determine customer needs.

PROMOTES: the X/Open Portability Guide (XPG), a set of open systems specifications for widely used standards such as SQL, Cobol, C and X Window System. Also tests and certifies products for XPG compliance. To date, more than 800 products are X/Open-branded.

COSE POLITICS

The potential trouble for the COSE vendors lies in getting four fiercely competitive companies to work together—and to do so without a legal safety net. So far, there is no overall cross-licensing agreement formally tying the firms together for COSE development. Instead, the vendors are relying on individual licensing agreements for the technologies involved.

"Clearly, there's a potential for it not to work," observed Ed Hoerner, director of infrastructure implementation and planning at GTE Telephone Operations in Irving, Texas, and a longtime open systems advocate. "If one of these companies gets mad at the others, the whole thing could fall apart."

"Are we bitching and moaning at each other? The answer is yes," said Michael Sears, director of the program office at SunSoft. "Are we getting things done? The answer is also yes. We're meeting and talking all the time. A couple hundred thousand pounds of jet fuel have been expended on this 'virtual corporation.'"

(Continued on page 24)



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SOFTWARE FOR BUSINESS INTEGRATION

The IBM logo, consisting of the letters "IBM" in a bold, sans-serif font, with horizontal stripes integrated into the letters.

(Continued from page 21)

To speed along the standards process, the COSE players made sure X/Open would use its "fast track" process to consider the COSE specifications and to create a testing and branding program as well (see story below).

At X/Open, a newly created topic group called the Desktop Working Group is handling the formal CDE specification. This desktop group, plus an X/Open "requirements topic group," began meeting in July to feed recommendations to the COSE sponsors and prepare for the finished specification's delivery in December.

Even more significantly, the plan to implement the new COSE specifications reverses the usual process for developing standards. The COSE projects are being jointly developed behind closed doors by IBM, HP, SunSoft and Novell. Only after the four firms have created their products will they extract the common

specifications to submit to X/Open.

That reversed approach has prompted suspicions that X/Open's fast track is simply a way of railroading the COSE products through the standards process.

"The fast track process is not used a lot," said Hal Wilson, vice president at systems integrator PRC and the person who sponsored the proposal to fast track CDE before the X/Open User Council. "There was concern among the membership: Exactly what are we buying into here? Will we lose our objectivity?"

The COSE sponsors have vowed to abide by any product changes required by X/Open, but a mantle of silence over the group's work has effectively kept both users and other vendors in the dark.

Meanwhile, technical work on COSE has been moving steadily forward, the sponsoring companies said. In June, they issued a 117-page

"functional specification" for CDE. That spec describes a single set of source code for all four primary platforms: SunSoft's Solaris, HP's HP/UX, IBM's AIX and Novell's Unix System V Release 4.2.

The X/Open membership — comprising dozens of system and software vendors plus user companies — will vote on that initial CDE specification next month at a conference in Rome. Still undecided, however, is exactly how CDE will be offered as a product when it finally hits the market in mid- to late 1994.

UP AND RUNNING

Yet despite the confusion surrounding COSE, most users said they still like what they have heard — at least as a first step.

"This provides a solid baseline," said Jonathan Vaughan, vice president at The Chase Manhattan Bank NA in New York. "However, other than for purely desktop products, the APIs are just a starting point. In an enterprise environment, you're really going to have to go to the next level, with things like security services, naming services and management facilities. It's not clear how that will be resolved."

"It doesn't help us at all to have multiple standards," added Kevin Reilly, vice president of information systems at Richardson Electronics in suburban Chicago. "We're not moving to Unix because the vendors have told us how great it is; we're moving to Unix because we know we need distributed systems and interoperability."

But handling those complexities requires disposing of the incompatibilities among Unix platforms, Kirchner noted. "The quicker you force the operating system into being a commodity, the quicker you can move up to the next level," she said. ☐

Hoyes is a Portland, Ore.-based freelance writer who specializes in Unix and open systems. His Internet address is frankhoyes@bix.com.

ON THE FAST TRACK

X/Open's fast track process is similar to the organization's normal standards process — but with the front and speed off.

Ordinarily, a technical working group composed of X/Open vendor members spends two years or more developing and refining a specification. Vendors can examine draft after draft of the proposed specification before it is submitted to the X/Open membership for a vote.

But in the fast track process, the proposal's sponsor must do most of the development work on the specification. The X/Open working group's effort is largely limited to accepting or rejecting a finished proposal. If a spec is not up to snuff, it is returned to the developers for more work.

"The fast track process will only work as well as the quality of the specification," said Alan Bickman, a member of the technical staff at Bell Communications Research who has worked on past X/Open specs. In addition, Bickman said, a fast track spec "needs considerable industry support behind it," as it must still pass the same number of votes as a conventional X/Open standard.

For X/Open, fast-tracking has the advantage of the sponsoring vendors feeling the hill for developing the specification. For sponsoring vendors, fast-tracking may cut the time a proposal spends in a working group to a few months "if everything is perfect," according to X/Open spokesman Jeff Hansen.

However, fast-tracking carries no guarantee. The OSF's DCE, which was returned to developers for additional work, will spend a year in the process. If all goes well, COSE's desktop environment specification will be up for a vote next month and could emerge ready for approval by April. Thus X/Open-branded products might be available by mid- to late 1994.



Living with the Legacy

The essence of client/server computing is the strategy of distributing computations and data over multiple computers. One of the key challenges is initiating a distributed computation over distributed data while ensuring the integrity of the result.

The need for distributed transaction control is evident in financial management systems, which must ensure that no expenditure is approved without available funds. Other types of systems (scheduling, parts inventory, order fulfillment, etc.) have similar situations in which they have to keep balances consistent across two different subsystems or databases.

The system software that provides this capability — the "transaction processing monitor system" or TPMS — has been used in mainframe shops for more than 20 years.

Now, TPMSs are making their debut in client/server environments to solve the same problems.

For example, IBM, whose CICS is synonymous with mainframe transaction processing, now has versions of CICS for OS/2 and AIX. Hewlett-Packard is implementing CICS under HP/UX, and IBM is even producing a Microsoft Windows NT version.

A recent market research survey by International Data Corp. projects that CICS will control 60% of the TPMS market for the foreseeable future — in both client/server and mainframe environments.

And why not? The characteristics of CICS are well-understood. There are more trained CICS programmers by an order of magnitude than for any other TPMS. CICS will likely provide the most robust way of integrating mainframes into the distributed client/server environment —

something that most large organizations want to do.

However, a transaction processing monitor is not the only way to ensure the integrity of distributed computations and data.

Vendors of client/server database management systems are developing their own solutions, providing two-phase commit processing, data replication control and a variety of approaches to include both network- and mainframe-based data in the solution.

Many applications don't require true simultaneous updates (such as a bank credit card application might) but can deal with databases that get back into synchronization within a few seconds or minutes.

Sybase has been emphasizing the use of its new Replication Server in these cases, claiming they are far more common than those requiring true two-phase commit. Oracle and Sybase also offer capabilities for database two-phase commit, allowing the implementation of large systems with the database split across multiple servers. A good example is a banking system that keeps certain customer files on servers at each branch.

The ideas of two-phase commit and replication processing have also been around for a long time. What is new, of course, is the technology for downsizing and client/server. The fight is shaping up in the space where CICS is moving down and the newer entrants are moving up.

Today's software systems for ensuring distributed transactions are still based on a procedural programming model. But object-based systems will also have to deal with these issues.

Once these systems are able to ensure the integrity of messages passed over a network, we will truly have a contender to unseat CICS from its throne. ☐



JERROLD GROCHOW

Grochow is vice president and chief technology officer of American Management Systems, Inc. in Reston, Va.

CICS will likely provide the most robust way of integrating mainframes into the distributed client/server environment.



Helene Curtis, Joyce Young (smiled)
and Maria Buczynski put a powerful
decision support system at the
fingertips of sales reps

MAKING WAVES

at Helene Curtis

Daily access to constantly updated customer and product information allows sales reps to react to market changes faster

Twas nearly the night before Christmas five years ago, and Joyce Young was despairing over her first client/server project.

The director of decision support systems at Helene Curtis Industries, Inc. in Chicago had just given 20 salespeople the pilot version of what later became a very successful sales automation system. She was out having a late dinner with Maria Borzych, her sales systems manager and the first employee to join Young's fledgling three-person department.

"Things were not good. We were so upset! We wondered if we'd have jobs when it was over," said Young, who can smile about it all now. "We were using all this beta stuff, and we became our own system integrators. It was awful."

Client/server computing arriv-



THE COMPANY: Helene Curtis Industries, Inc. Sales of \$1.28 in 1993 and net income of \$16.6M. Fortune 500 rank: 353. Employs 3,200 worldwide.

THE MARKET POSITION: Ranks No. 1 in U.S. in sales of hair conditioner and mousse/gels and No. 2 in shampoos, behind Procter & Gamble Co.

THE KEY COMPETITORS: Procter & Gamble, Unilever, Alberto-Culver Co., Gillette Co.

THE PRODUCTS: Shave, Finest, Selen Selectives and Vivience shampoos and conditioners, Degree antiperspirant, Quantum permanent wave and other salon products.

ed at Helene Curtis Industries not with a bang but a whisper—and long before it became a fashionable buzzword.

"From the very beginning, we had a great deal of involvement with our clients, the sales force," said Young, 40, whose background includes degrees in computer science and business administration plus five years of information systems consulting for KPMG Peat Marwick. "These are very aggressive people, and I had to coalition-build. I couldn't go to them and be 'Mrs. Tech Wienie IS' and be successful."

That first client/server project—a circa 1989 sales information system that gave laptop PCs to 170 direct sales representatives and managers nationwide—is scheduled for its second-generation revamp next year. A

(Continued on page 28)

BY MARYFRAN JOHNSON

Products Then and Now

In 1927, Gerald Gidwitz and Louis Stein founded the National Mineral Co. to sell mud packs to beauty salons. The company was renamed Helene Curtis, after Louise Stein's wife and son, in the late 1940s.



Lanolin Creme Shampoo
1940s



Stoptete Antiperspirant
1950s



Suave Shampoo
1950s-90s

(Continued from page 27)

new retail information system — the second major client/server project — began rolling out last month to 150 more members of the retail sales force (see story below). This time, Young's department put pen-based AST Research, Inc./Grid Systems Corp. palmtop computers in the hands of another set of sales reps.

The decision support systems group now counts 30 staffers among Helene Curtis' 137-person Business Information Systems Division. The handful of PCs kicking around when Young joined the company in 1988 is now a network of more than 700 desktops and 21 LANs.

For this \$1.2 billion corporation, whose mainstay product lines include Suave, Finesse and Salon Selectives shampoos and conditioners,

client/server has come to mean all forms of decision support for sales, marketing and finance. "The scope that my department has is very broad; we support everything that is not part of the data center or the transaction processing systems," said Young, whose budget this year is about \$3 million of the overall \$25 million IS budget.

Success has been one of Joyce Young's personal hallmarks. Now married and the mother of a 5-year-old son, she once considered careers in dress designing or professional dance. Her first job in the computer industry was as a programmer/analyst at the now-defunct Sperry Univac Corp., where she began working with fourth-generation languages and modeling tools.

"Decision support systems were

FROM PAPERWORK TO PALMPADS

By all rights, Gus Glot should have been exhausted.

Instead, Helene Curtis' customer business development manager was elated as he played through a series of 14-hour days last month during the first rollout phases of sales force training on the long-awaited retail information system.

"I've never seen so many people excited about something like this," said Glot, who provides head-on, confidential support and acts as a liaison between sales and the decision support systems staff. "These people were clearly here to learn something they consider really important to them."

Based on AST Research's Grid palmtop computers and in-house-developed software, the new system promises to broaden the business analysis capabilities of the retail sales representatives, who serve as "our eyes and ears out in the stores," said Paul Silverman, national field sales manager at Helene Curtis.

"I really believe this gives us a competitive edge," Silverman said. "It lets us get information down to individual shipments of products, right to the retail store level."

In the past, when a new brand of shampoo or conditioner was launched, the only way to track the product's success was through written reports submitted by the roughly 150 direct sales reps spread across the country. Each representative was responsible for a territory that might include up to 250 grocery stores, mass merchandisers and convenience stores.

That paperwork, which took several weeks to process and analyze back at headquarters, covered information such as how many bottles of the new shampoo a store was stocking, its price and how well it was selling.

But in the hotly competitive consumer products market, sales reps in the '90s must be able to analyze and react to situations like business managers rather than the product suppliers.

The sales reps will be able to verify input product information into the palmtops and upload it each night to the national database on the Sun servers in Chicago.

"Now we can watch our distribution build almost by day, which helps us with things like when to turn on the media spending," Glot noted.

a big interest of mine from the days of the early PCs and LANs," Young noted.

The sales automation system that Young's department built at Helene Curtis gives the sales force daily access via laptops to constantly updated product and customer information that once took several weeks to assemble and distribute.

"Our system is very flexible and fluid—what data you pull up," said Paul Silverman, national field sales manager at Helene Curtis and an early evangelist for the technology. "That's a good deal of its power."

For example, a sales rep can fire up his Compaq Computer Corp. Contura SL laptop and ask for all customers with orders over \$5,000 as of yesterday. Then he can query specific product distribution information for Suave and Finesse shampoos. When he later connects — through a dial-in modem over X.25 Sprint Corp. leased lines — to the national database in Chicago, he will upload his latest information from the field and drop off requests for additional reports not included in his laptop database.

The laptops run several off-the-shelf software packages, such as WordPerfect Corp.'s WordPerfect, Lotus Development Corp.'s 1-2-3, Software Publishing Corp.'s Harvard Graphics, a Moditech Corp. electronic-mail system and Dealmaker forms software from EASI Co.

EMPOWERING BUSINESS MANAGERS

Direct and retail sales reps perform very different jobs at Helene Curtis.

Direct sales representatives — the ones with laptops — deal at higher corporate levels with the buyers for merchandisers such as Kmart Corp. Retail sales reps, on the other hand, work with individual retail store managers in the roughly 40,000 different drugstores, supermarkets and retail outlets in which customers

Client/server has come to mean all forms of decision support for sales, marketing and finance.

buy Helene Curtis products.

The new palmpad-based retail system will give sales reps an automated way to collect data, an analysis tool to measure sales productivity and more disciplined planning methods for handling accounts at the retail store level.

"This kind of technology allows us to bring information to the retail sales reps that empowers them to become business managers," said Dan Glei, customer business development manager and a key user liaison between IS and the sales force. "They can analyze information they never had before and make better decisions because of it."

EDGE ON COMPETITION

Making better decisions is an increasingly crucial skill in the viciously competitive hair care market, in which Helene Curtis rose from relative obscurity a decade ago to become one of Procter & Gamble Co.'s most significant rivals.

"Helene Curtis has been very innovative over the years in new product creation and very persistent in reworking brands and supporting them," said Diana Temple, an analyst at Salomon Brothers, Inc. in New York. "But their U.S. sales were off by 7% in the first quarter because of inventory reductions by retailers."

"They're not doing that well right now, but I'd guess they'd be doing a little more poorly if it wasn't for their great information technology," added Andrew Shore, an analyst at Paine-Webber, Inc. in New York.

The new retail information system, which was three years in the making from inception to reality, has a "fairly near-term horizon for payback," Glei said. "We believe this will provide us with a very distinct competitive advantage."

One quick payback from the re-

(Continued on page 30)

Open Systems Evolution

Open systems began emerging as a serious corporate direction for Helene Curtis in the spring of 1992.

"That's when we started a more formal dialogue around open systems," said Tom Giblin, vice president of business information services. "One reason for doing it was educational. The other was just to start the cultural process."

Giblin brought in a consultant to analyze his current computer setup — "We have everything here except Wang equipment," he noted — and then talk about the gradual process of software downloading with the 137-person IS staff.

"It surfaced a lot of angst on the part of the non-IS people," Giblin recalled. "They're afraid their entire careers on this equipment, and a lot of their self-worth is tied up in being systems programmers, that the skills they have are important — and many of them are child client/server doesn't have yet."

In March, Helene Curtis redigned into two major divisions: U.S. and International. The IS operations remained intact as a nonpartisan function, responsible for both the U.S. and international divisions. "Our CEO [Steve Shickel] felt that we're going to be global, and information is the key," Giblin said.

"There's a lot of good stuff available out there for client/server, but you look at the product offerings and see a lot that is not there," he added. "Little fundamental like backup, recovery, security, system management..."

Giblin is making a special effort to bring the operations and technical services staffers into "this revolution for client/server" rather than just merely informing them about new technology choices afterward.

"I'm trying to position them so they become experts, so when they come to the table they're prepared to render expert opinion," Giblin said. "I'm trying to educate them to make of a partner."

(Continued from page 29)

tall system, Young added, is that it will let the sales reps add one more store to their daily rounds — eliminating the need to hire more salespeople.

POWERFUL ANALYSIS TOOLS

The combination of daily updates from the field with syndicated market data has proved to be a powerful tool for market analysis at Helene Curtis.

When competitor Unilever introduced a new shampoo called Rave, for example, the market research department at Helene Curtis assumed it was aimed at their Salon Selectives line. But an investigation and analysis indicated that the bargain-priced Saave line was the true target.

"We were going to take down the pricing on Salon Selectives as a reaction to Rave, but the system enabled them to avoid doing something very reactive and losing money," Young recalled.

The heart and soul of the decision support operation lies within the 25G bytes of data stored in a relational database on a Teradata, Inc. system in the data center. It stores syndicated market data from A.C. Nielsen Co. about the \$20 billion personal care products industry, as well as product information from the field and internal data on logistics, promotions, sales and order entry.

From that data warehouse, infor-

mation is parceled out to a Sybase, Inc. relational database management system on several Sun Microsystems, Inc. servers and then farther down to Novell, Inc. NetWare LANs, IBM-compatible PCs and the Compaq laptops.

Now facing a bill of \$400,000 to upgrade storage capacity on the Teradata system, Helene Curtis is actively considering other options for its next wave of technology purchases. The "Three Rs" at the firm now are "rehosting, rightsizing and re-engineering," said Tom Gildea, vice president of business information services.

To identify the vendors that will become strategic partners in the future, a team of 25 IS managers and staffers recently visited several major system and software vendors: NCR Corp., Hewlett-Packard Co. and Digital Equipment Corp. all made the short list as potential partners.

"One thing we've discovered is that nobody has a complete solution out there," Gildea said. "I'm reluctant to say we're going to go to client/server everywhere because then everybody's got a hammer in their hand saying, 'This is what we're going to do.'" he added. "What I want

The 'Three Rs' at Helene Curtis are rehosting, rightsizing and re- engineering.

people to do is sit down and develop intelligent applications for the user community."

NO EASY TASK

Although client/server systems ultimately provided tangible benefits for the company, there were unswerving pitfalls in the early days — from LAN configuration crises to distributed data synchronization problems.

One big mistake Helene Curtis made with the sales information system, for example, was overzealously distributing databases to the field. "We had the actual database running on the laptops, and it was just a nightmare to support," said Borzych, sales systems manager. "Because we have very sophisticated transactions going on here and sales territories realigning, we have as many as 500 customers that could change from one territory to another. Being able to keep those databases in sync and up to date was a logistics nightmare, as well."

Moving back to a centralized national database on the Sun servers — with only the easily refreshed data distributed on the laptops — was a change the sales reps welcomed, Borzych said. "Now if they submit a report at 11 a.m. and wait until 11:30 a.m. to pick it up, 95% of the time their reports are ready."

Aside from introducing a new type of computing to Helene Curtis users, decision support systems also pioneered a closer working relationship with users during application design.

"The crux of the success of Joyce's group is the heavy front-end involvement of users and people like me becoming part of their business," Giel said. "Joyce and her people work real hard to understand our needs and deliver on them." ■

Margaret Johnson is editor of *Computerworld Client/Server Journal*.

Sales representation
Susan Broadfield (right)
records crucial sales and
marketing information
with an RST Research/
Grid palmapal computer,
also pictured below



Columbia Polishes Financial Aid Image



Columbia University's Mark Olson: "You can survive new technology..."

Building client/server applications is a lot like defensive driving: Getting to the destination quickly may be your goal, but you have to be prepared for some mishaps along the way.

Such is the case at Columbia University in New York, where information systems personnel are immersed in a five-year plan to re-engineer key business processes for the school's 15 colleges. They are striving to enable faster turnaround and less paper shuffling for critical activities such as admissions and financial aid.

"You can survive new technology, even bleeding-edge client/server stuff," said Mark Olson, vice president of Columbia's student financial and information services. "But be ready for some surprises."

Those surprises came in many forms, from LAN-to-host communications snags to difficulties with distributed systems management. But Columbia was prepared for the detours and wasn't afraid to call in experts to keep the project moving, Olson noted.

Among the biggest eye-openers, the IS executive said, were the complexities of developing in a heterogeneous environment that included a

mix of IBM software and hardware, Novell, Inc. NetWare LANs, an optical jukebox from Hewlett-Packard Co., a scanner from Fujitsu America, Inc. and PC clones from Dell Computer Corp.

"We found that we have to have OS/2 experts, LAN/Novell experts, Ethernet experts to get the gateway working to the IBM mainframe and so forth," Olson said. "We pushed the envelope everywhere we could."

Establishing and following "a rigorous diagnosis to track down problems" was important, Olson stressed. During testing and integration, for instance, a glitch might be traced to a scanning device. That, in turn, could mean the problem was in the front-end applications code, a communications interface, the network or the

(Continued on page 34)

BY DAVID BAUM

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IBM 990	\$167,800	136.0	\$1,173
HP 160	\$136,530	82.0	\$1,665
DEC 4000/610	\$138,728	94.6	\$1,392

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(Continued from page 31)
IBM CICS environment.

But the end result was gratifying, he added, as financial aid counselors became "30% more productive" and are now better prepared for audits.

Eight financial aid counselors at two colleges are currently using the system, and by next year, as many as 12 counselors at five colleges will rely on it.

Like other universities, Columbia's financial aid situation is a highly regulated, paper-bound and politically charged process. Yet getting answers to students quickly could sway their decision to attend a particular school — making a smoothly run financial aid system a distinct competitive edge.

The achievement of that goal, however, was encumbered by increased government regulation, a growing student population and reliance on an overworked IBM mainframe for running key programs. Work queues consisted of boxes of folders routed from one desk to another.

All in all, counselors were spending as much as 20% of their time chasing down paper, Olson estimated.

Working with consultants from American Management Systems, Inc. (AMS) in Fairfax, Va., Olson pieced together a new environment that incorporated electronic imaging of documents and a scalable system of OS/2 workstations networked to the mainframe.

Today, snapshots of documents are scanned as soon as the mail is opened, and an attached workstation sends a record to a tracking index on the mainframe. Electronic folders of the documents are maintained there, while the images are stored on optical platters in the HP jukebox.

Each night, a DB2 batch job runs on the mainframe to determine which student folders are complete. Those folders are automatically routed into the local memory of a counselor's PC, where they are queued up for review the next morning.

NO IVORY TOWERS

Columbia University's Mark Olson offered some pointers for successfully managing client/server projects:

- **Derive a scalable architecture to mitigate risk.**
- **Plan to spend extra time on communications issues such as integrating PC processes with mainframe processes.**
- **Designate an administrator to manage day-to-day system activities outside of the data center.**
- **Allow plenty of time for testing in a heterogeneous environment.**
- **Develop applications rapidly, but carefully consider the overall architecture first.**
- **Partner with vendors or consultants that are mutually invested in both the risks and the rewards.**
- **Take ownership of the tools and technology by insisting on a skills transfer to your own staff.**
- **Set up a backup plan to keep business running on equal until the new applications enter full production mode.**

Counselors view images of documents on 19-in. monitors, which also display an active window into the mainframe for accessing the DB2 tracking index and running the needs analysis program under IBM's CICS. Award letters are automatically generated.

"The new imaging system is a huge time saver," said David Charlow, associate director of student financial services. "All the tasks that used to require pulling hundreds of folders from the file cabinet — auditing, verification, needs analysis — are now handled on-line."

All in all, it took staff members about two days of intensive training to become proficient with the new system, he added.

It also took some ingenuity and patience to get all the communications links working properly, Olson said. Devising the connectivity to view mainframe processes in an active session under OS/2 Presentation Manager tied up three programmers, for nearly three weeks.

"Eventually, communication parameters between the LAN and the host had to be resolved by calling in

an expert from IBM," Olson recalled.

Another problem the staff members wrestled with was how to provide adequate systems management in a decentralized setting.

"We didn't want to help the counselors save time pushing paper only to have them spend time learning to become computer technicians," said Donna Morea, a vice president at AMS who is working with Olson on the re-engineering projects. Columbia solved the problem by insisting on applications that require a minimum of babysitting and upkeep.

The university also hired an administrator to manage day-to-day system activities outside of the data center. Staff members avoided distributed data management problems by maintaining information centrally on the host.

"We don't have to worry about data ownership conflicts or synchronization problems or with mirroring data on multiple devices," Morea explained. "These issues can be a thorn in the side of some distributed applications."

Another thorny area of client/server is rapid application development. Working fast is not always conducive to the long-term goal of creating a maintainable system.

Columbia used IBM's Image and Record Management (IRM) system, an imaging system plus a set of tools for building imaging applications. IRM's rapid development methodology was used only after the architectural design had been established.

"To bring it up in one big bang would have been too risky, so we devised a way to roll out the system gradually to add LANs as we go," Olson said. "This way they could show results quickly, while tackling the distributed issues a little at a time." ■

Baum is a free-lance technology writer based in Santa Barbara, Calif. His MCI Mail address is 554-2167.

Sticker Shock!

The up-front costs of client/server can weigh down the bottom line

Any Wall Street veteran will tell you there is no such thing as wealth without risk. The same holds true for investment in information technology.

Client/server is still a rapidly evolving technology, and the cost guidelines outlined in this article should be considered rules of thumb only. But before you get swallowed up in the costs, it would be worthwhile for you to summarize the benefits of client/server computing. One is that client/server computing puts processing power where it is needed to address the business problem.

For example, consider an application for an insurance company with a complex rating process for underwriting policies. With today's processors, an underwriter can execute this application on the client side with seemingly immediate results — and no drain on the performance of other machines, which is likely to happen



in a host environment.

Another benefit is that client/server computing communicates what is happening in the business as it happens.

Let's say the same insurance underwriter is flummoxed by an exceptionally risky policy. Instead of letting days pass while a bulky file is transferred via interoffice mail, the underwriter's assessment and all related data can be communicated immediately to a special risk underwriter on the network backbone.

Many of the benefits associated with client/server arise out of these

new classes of applications. Likewise, many of the risks and costs of client/server arise from these same sources. The key to success is to develop plans and deploy people to control the risks and manage the expenses.

By 1997, the client/server integration market in the U.S. alone is expected to grow 28% to more than \$13 billion, according to G2 Research, Inc. This might suggest that companies are clamoring for client/server. But in our experience, successful organizations are seeking business applications, not client/server or new

(Continued on page 36)

BY HUGH RYAN

(Continued from page 35)
technology applications.

These demands call for new classes of applications that expand the way companies serve customers and change and manage themselves.

Take thousands of employees and put them in the path of a re-engi-

neering juggernaut. Who wins? Nobody, unless the client/server project includes significant change management efforts at the outset.

CHANGING PROCESSES AND PEOPLE

The benefits of client/server arise from changing the business process.

One frequently overlooked implication is that the business user and information systems staff must change as well. This notion should raise a red flag or two, for very few of us like to change.

In some cases, even those of us who want to change cannot keep up with technology.

One food product manufacturer I have worked with is finding that its IS staffers can write systems that re-engineer the process of food merchandising faster than they can train business users on their systems. Critical to the success of the client/server project is recognizing that the business user feels the greatest impact in a re-engineering project and therefore requires significant time to learn and adapt to new processes.

My experience shows that each business user needs one to three weeks to learn a new system that significantly changes the business process. One large system I worked on required a three-week time frame for each business user to learn the system and have time to evaluate and change it. With thousands of workers, the training costs alone were in the millions of dollars.

In this particular case, because of the number of people who were put through training, the cost to develop training materials was not large in comparison.

However, when you are dealing with more typical efforts of 10 to hundreds of business users, the cost to develop training material is often estimated at 40 to 80 hours per hour of training material.

MASSIVE TRAINING REQUIRED

The IS staff must also go through a significant skills upgrade to deal with the demands of client/server technology. New skills must be learned for new design methodologies and design for graphical user interfaces, as well as for development tools (see story page 38).

By multiplying these times by the head count in one's own shop—and taking into consideration existing skill sets—you can approximate



The UK Department of Social Security used IS to streamline benefits for its citizens.

BENEFICIAL CHANGES

Large, enterprise-wide projects dramatically show the need for change management. Officials at the UK Department of Social Security (DSS) knew that the quality of its service to beneficiaries was being compromised by obsolete computer systems and manual methods. In local offices, there were no computers at all.

Instead of simply implementing new information technologies, however, the department developed a new vision for delivering benefits and began to revamp the way its 86,000 civil servants do their jobs.

The long-term intent was to focus on the whole person—to move away from older methods of processing claims on a benefit-by-benefit basis. The DSS wanted to be able to display on one screen a "snapshot" of a person's history of contributions and benefits.

One project, for example, installed 2,500 microcomputers in local offices, preparing workers accustomed to manual operations for the upcoming changes. Such short-range successes generated confidence in the program's ability to deliver.

In later stages, change management played a crucial role in educating and training employees, planning the rollout, redefining jobs and establishing a single point of help. During the training period, some 1,400 staff members began the 10-day course at 32 area training centers.

The system, installed in 1989, dispenses 74,000 payments a day. The majority of benefits are distributed through 26,000 post offices in the form of booklets with six months' worth of checks that recipients cash each week. The new retirement pension system handles 99.5% of all cases automatically and is saving the British government an estimated \$1.6 billion a year.

training costs for your staff.

Be aware that this technology is progressing rapidly and requires a commitment to ongoing training. In general, plan an average of a week per person every year for skills upgrade, in addition to the core training. While each site will vary somewhat, this should provide a strawman for front-end and ongoing training costs.

A NEW TYPE OF STICKER SHOCK

Vendors often tout client/server as the faster, cheaper, easier alternative to mainframe computing. In reality, the up-front cost of building client/server systems carries with it a new type of sticker shock. New infrastructure costs, longer development time and a complex environment can result in a higher initial cost for building client/server solution.

Client/server requires a solid infrastructure of tools, system software, hardware and network gear. With traditional environments, we have come to expect these tools to be available either as part of the operating system or as part of a selected product.

With client/server, one can buy many parts but not an integrated assembly of the infrastructure. The range of infrastructure products is very wide. For example, productivity tools for window painting may not tie into code generators. And there may not be tools to address remote printing and recovery of lost printed reports. Tools to deliver applications to a local site may not exist at all yet.

The range in infrastructure costs can be startling, even for companies in the same industry. For example, I worked with one U.S. utility that selected and used an integrated tool set to deliver the infrastructure in about 500 work days. Another utility, which chose a heterogeneous mix of hardware and system software and networking, needed 1,500 work days to develop the infrastructure.

Such a wide range indicates that delivering the infrastructure demands that attention be given to the specifics of each site and what is in place before a maiden client/server



Vendors often tout client/server as the faster, cheaper, easier alternative to mainframe computing. In reality, the up-front cost of building client/server systems carries with it a new type of sticker shock.

voyage is launched.

In our work, one of the big drivers of time in estimating costs is the number of I/Os. In a traditional environment, this would include screens and reports; with client/server, windows prevail.

Our development effort guidelines show little difference in the time required to create screens vs. windows. This might suggest that development time frames for traditional and client/server environments are similar. Yet the client/server environment has significantly more windows, and our estimates suggest that these new applications therefore take longer to build.

Workstation-based systems are built around the user, requiring more time to design and tailor. This adds longer testing time, due to more functions and options. And the new level of interaction (event, mouse move-

ment, etc.) increases the complexity of the system.

Our internal surveys of where time goes in a systems development effort show that more than 60% of the design effort is spent on testing. This includes submissions and execution of tests as well as problem analysis and revisions of approaches. In some cases, I've seen testing eat as much as 80% of the design budget.

Putting the computing where it is needed means that we can deliver more functionality and better communication among users — one of client/server's strongest benefits. But in doing more, there is more to test to ensure functions work as expected and results are delivered when and where they are needed.

The resulting benefit is that instead of a customer service system with five functions, for example, client/server might deliver 10 new functions. So the system is more useful to the business.

MULTIPLYING COMPLEXITIES

Consider that in an open systems environment, there are four or five major platforms to choose from, four or more database management system providers, five or more communications alternatives, five or six productivity environments and so on. It is easy to conclude that there can be more than 6,000 technical combinations possible for such an open environment. (I have actually seen estimates of millions of combinations.)

This is great news if you are a consultant doing product selection but wildly frustrating if you are a systems builder eager to get on with the job. The number of combinations means the selection process can be greatly drawn out.

System management adds another layer of complexity to the client/server environment.

Traditional systems came wrapped in the comfort of operating system software and complete, integrated service from the vendor. But system management for client/server, which in a first development

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effort can represent 10% to 40% of the overall cost, means controlling a heterogeneous environment with multiple components.

The industry is beginning to produce partial solutions from vendors such as Computer Associates International, Inc., Hewlett-Packard Co., Sun Microsystems, Inc. and IBM. Compared with what we expect in mainframe environments, though, they are incomplete. They focus primarily on bringing up and running hardware. Capabilities such as performance reporting, failure prediction and on-the-fly optimization of resources are in the early stages.

Delivering the network requires painstaking planning. Client/server systems bring about the complex problem of integrating multiple vendors of hardware systems, software and network protocols.

In general, delivering the network involves three stages: planning, designing and implementing. The planning stage should last two to three months with four to six skilled


TRAINING TIMES

The cost of change management depends on a number of factors.

For a significant change in the business process, plus on spending two or more weeks for each business worker using the system. For information systems personnel, it generally takes three to six months for the typical IS person to become comfortable with new technology. This includes hands-on and formal training.

Here are some initial guidelines, by position, for formal training, assuming the individual knows the traditional technology:

- Programmer: Two to four weeks of training.
- Designer: One to two weeks.
- Architect: One to two weeks.
- Program manager: One week focused on the differences and risks of client/server implementation.



Client/server is taking the computer where no computer has gone before, raising the issue of site selection.

network people. Estimating and managing network delivery costs is difficult for several reasons. Costs and effort are variable based on the site. While installation at a single, well-connected site may not be a big issue, installation at a variety of sites nationwide — or even worldwide — with multiple vendors can gobble up a major portion of development costs.

Also beware of long lead times for ordering the distributed network capabilities needed for client/server solutions, especially where running cable or wires might require approval from local regulatory bodies.

SITE SELECTION ISSUES

Client/server is taking the computer where no computer has gone before, raising the issue of site selection. My only advice here is to expect the unexpected. One very large project I worked on in Europe involved installation in buildings more than a century old. Not surprisingly, the typical 18th and 19th century architects showed very little foresight about the impact of office LANs on their building designs.

In cases like this, site upgrade and implementation can be the single largest line item in a client/server project, especially in cases where multiple sites require significant upgrade. Developing clear rollout standards is critical.

Such standards address issues such as standardized wiring and the need for uninterruptible power supplies as well as air-conditioning and potential air cleaners. For example, I worked at one site that transported loads of carbon black. In warm weather, office workers opened their win-

dows to cool off. When distributed file servers were introduced, the combination of heat from the CPUs and carbon black on the disk drives soon spurred the need for standard air-conditioning and purification.

At other sites, union rules may impose constraints on heating and/or noise, which can greatly increase the need for adequate site preparation and installation. All of this means that you might need electricians and carpenters on-site for one to three weeks — an expense in itself, not to mention the hidden cost of disrupting the work environment.

So with all of its costs and risks, why bother with client/server? Simple: It provides a fundamentally different technology that can provide dramatically new solutions. We are only beginning to tap its potential.

Utilities are investigating the possibility of arming field representatives with handheld machines that record, store and transmit field data, including video and audio. Warehouse workers tote computers that change inventory methods. Farmers armed with computers monitor the effects of new fertilizers and pesticides on their crops.

Do these new classes of solutions involve risk? Yes. Are the rewards worth the risk? Emphatically yes — when they are aligned with your organization's strategy, processes and people.

With smart planning and a firm vision of the business future, you can parlay your client/server investment into impressive gains. ■

Ryan is a managing partner at Andersen Consulting in Chicago.

Just Do RAD

Reebok uses rapid application development for quick catalog creation

By Sally Cusack

While much of the high-tech world is enamored with the cheaper, better, faster promises of the client/server environment, upper management remains a tough sell in most corporations.

At Reebok International Ltd. in Slough, Mass., Peter W. Burrows, director of systems engineering, found that one highly effective way to approach the executive suite for funding a client/server effort is to start with a small, easy-to-manage project.

"Implementing some quick, rapid application development on a small, departmental-level system is often the easiest way to demonstrate the advantages of client/server technology," he said.

Companies do not need a large, initial capital investment to start the client/server process, Burrows said, pointing to the widespread availability of PC LANs and off-the-shelf software. Reebok has had early success in using client/server technology to produce product catalogs combining images, product and text across a PC LAN client/server environment.

Another example is in the company's customer service group, where 120 PCs on a PC LAN were approved after management liked what it saw in a demonstration of in-house-developed database software on a sin-



gle PC. "People are more apt to approve something if they can see it in action," Burrows noted. The system, used for contact management and account follow-up, subsequently grew to 120 users in four cities.

Rather than tackling more complex areas such as database or document management systems on their first venture into client/server, companies should start with marketing, support or sales systems, he added. Those are often the departments in which executives are already implementing several tasks for themselves on stand-alone PCs.

Since Reebok's PC LANs were already installed, cash investment was minimal and using off-the-shelf software allowed systems development to be completed in less than a day for the simplest applications, Burrows noted, and up to three months for more sophisticated projects.

Another good place for informa-

tion systems departments to experiment with client/server is in the mainframe development backlog found in any large organization. Burrows suggested that IS managers prioritize and evaluate the backlog. "One has to determine if some of the work could in fact be done on a PC or midrange platform," he said, adding that Reebok has done some reporting backlog work using fourth-generation language products on a Unix server running Sybase, Inc.'s relational database, as well as on 486-based PC servers.

With the PC software market setting the rules for ease of use in the industry, Burrows recommended that mainframe shops give the CICS/Cobol development staff some high-performance PCs and migrate them to some of the relatively inexpensive development tools on the market, such as Micro Focus, Inc.'s Cobol, Microsoft Corp.'s Visual Basic and Powersoft Corp.'s PowerBuilder.

Two of Reebok's former Cobol programmers, for example, recently built an order transmittal application in Visual Basic, Burrows said. "Once you put the PC on someone's desk, they get the feel of the LANs and other products," he added. "As a developer, you can't get by anymore with a single language, and companies can't have a single development style when moving to client/server." ■

Cusack is a freelance writer based in Marston Mills, Mass.

**Companies do
not need a
large, initial
capital invest-
ment to start
client/server.**



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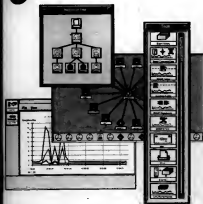
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Warring Over

The CEOs of Microsoft and Sun talk about client/server strategies, NT

Bill Gates, the software mogul who elicits equal parts of envy and twmity from his rivals, has marked the client/server arena as Microsoft Corp.'s next conquest. The strategy: Windows everywhere. The weapons: Windows NT and an army of more than 2,000 third-party partners. The goal: To chase Unix from its position as server operating system of choice.

CSJ What kind of client/server strategies are you putting in place to move beyond the desktop and succeed across the enterprise?

GATES It's not just a question of Microsoft being successful in client/server. It's Microsoft and its partners — software developers and solution providers — being successful. In the solution provider area, we don't see one company being the best at all the pieces. Client/server is a growth area. We have to reach out to solution providers and make sure they understand our products.

CSJ Many corporate customers don't seem to have a clear idea what Microsoft's client/server strategy is or how they should plan for it.

GATES Our strategy is the Windows strategy: to connect Windows to all the existing systems, to get more applications and tools running on Windows. Windows NT is the industrial-strength version of Windows.

What do we recommend on the server? Windows NT. What do we recommend on the desktop? If you have applications where you decide you need the features of NT, then have NT. If you don't need those features, then Windows 3.1 requires less hardware and it's the high-volume version of Windows.

CSJ If NT is appropriate on the desktop, what about Chicago, the follow-on product to Windows 3.1?

GATES Well, NT does require more memory; it's a much richer system. Taking the worst case, when you're

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"People who have learned about Unix over the years will embrace NT very rapidly because it includes all the concepts that were pioneered in Unix."

— Bill Gates

PHOTOGRAPH BY JEFFREY BELL

Windows

vs. Unix and the future of Windows By Maryfran Johnson



"I think if we all eat right and live healthy, long lives, we may see NT become a usable product down the road."

— Scott McNealy

CSJ But Microsoft has the corporate desktop sewn up, and by putting NT on the server, there is binary compatibility up and down the organization.

MCNEALY But you run your applications on the desktop, and you run your databases on the servers. Databases run way better on Unix. Why would you want to put a PC company's operating system in as the server operating system? What you want is a company that has a history of doing network administration, system administration, security, authentication, reliability — and has a distribution channel and consulting organizations.

CSJ Microsoft intends to acquire all of that for NT, which Bill Gates talks about as a new advanced operating system architected "from the ground up."

MCNEALY I'd love Gates to go to an MIS director and say, "I've got something new for you," and watch the MIS **Continued on page 45**

Scott McNealy, one of the Unix industry's most outrageous and outspoken evangelists, loves to compete almost as much as he loves to win. As the Microsoft juggernaut heads into his territory, he is mobilizing Sun Microsystems, Inc. by forging alliances with Unix competitors and preparing to run Windows applications on Unix machines.

CSJ Microsoft has a simple strategy for client/server: Windows everywhere, and NT on the server. How are Unix vendors competing with that?

MCNEALY The 32-bit distributed peer computing environment is up for grabs. Unix has a huge lead. There are more 32-bit Unix desktops and servers running businesses than any other environment. We're using the same operating system on the desktop and server. If you want to go Solaris on the server and Windows on the desktop, you can have all the interoperability, database access and the rest. You don't buy anything having Windows running on NT if it's on the server.

PHOTOGRAPH BY EDWARD CALDWELL

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running NT with all the security and running 16-bit applications, you can be as much as 15% to 20% slower than on Windows 3.1. Chicago in no way matches what we've done with NT. It doesn't come out until the second half of 1994.

CSJ Unix systems own the midrange and server level now, and the Unix vendors are increasingly aligned to hold that ground. How is NT going to work with Unix at the server level?

GATES Windows NT is an advanced, high-end operating system, and probably a lot of [Unix users] were waiting for a high-end operating system that could run across different hardware and was reasonably priced and had lots of applications. And here it is.

Meanwhile, we connect well into Unix systems through all the different transports and network protocols. We coexist very well.

CSJ Unix vendors such as Sun, Hewlett-Packard Co. and IBM seem a lot more worried about Microsoft domination than about coexistence.

GATES That's nonsense. They each push out their own source code. They each have their own APIs. Unix is not compatible from system to system. When you do standard systems, you help customers and [independent software vendors] by being rigid about what the system is — that's our NT strategy.

CSJ The battleground seems to be shifting now from the Unix to the Windows wars, especially with Sun's Wabi technology, which will allow Unix users to run Windows at much higher performance than under older emulation methods. What impact is Wabi going to have on your business?

GATES To software developers, the popularity of Windows is reasonably self-evident. Sun giving in to say, "Oops, if we want to sell systems, they have to have

"The question for customers is: Who has the best implementation of Windows? It's up to us to make sure we have the best."

— Bill Gates

the Windows APIs," just further strengthens the Windows message to software developers.

CSJ The Unix vendors can argue that users won't need Windows to run the most popular desktop applications anymore. Doesn't this undermine Microsoft's unique value?

GATES People will determine what the best ways to run Windows applications are. Operating system clones will never be able to keep up with our pace of innovation.

CSJ Are you going to sue Sun over the Wabi technology?

GATES Once customers have it, then we'll look at it. If they have done things in a clean way, in terms of not using our code or patents, then no, we won't sue them. If they've used some of our intellectual property, we'll look at the situation.

CSJ Isn't it possible that the Wabi technology could reduce Microsoft's market clout, the way the chip clone vendors did with Intel Corp.?

GATES It's very different than Intel in the sense that Intel has capacity constraints. So even if the Pentium is the best chip, if they can only make a million of them, they will choose a market-clearing price for those million chips. When we have an implementation of Windows, there are no capacity constraints. And we're very oriented toward high volume, low price.

CSJ Sun is also attempting to force Windows into the public domain through its Public Windows Interface effort, which will be a document submitted to the X/Open Co. with all the published and unpublished Windows APIs. Why doesn't Microsoft just go to X/Open and do this on its own?

GATES You can go buy a \$9 book at the local bookstore with that information, and all of the publishers in the world have that information already. We have all the documented calls of Windows very well-published, and we work to disseminate that information. I'm not clear what the change would be.

CSJ How do you think the PC industry and the Unix people see the concept of open systems differently?

GATES If open means where do you have the most hardware and software choices, then the approach Microsoft has taken in working with lots of partners is the most open. If open means the bigger committee you have, the more open you are, then things like ASCII or the Object Management Group are the most open things in the world.

Why is it that PCs outsell the most popular Unix systems 100-to-1? Remember, we outsold those systems 100-to-1 when our technology was not even comparable. So here we come. We're invading their space in terms of the power of the operating system. We're bringing lots of hardware suppliers, much lower prices for the operating system and a broad set of Windows applications into this space.

CSJ What do you think of people referring to Microsoft as the "IBM of the '90s"?

GATES It's not an accurate characterization because we have a whole new industry structure here where I don't think any company will be the best in every area. There's too much innovation, too much happening. ■

Continued from page 43

director shake and sweat and throw him out of his office. I want him to call it New Technology because what MIS directors want is not new technology. They want proved technology that can solve their problems. This is not some experimental playground to go debug a Redmond, Wash., science project.

CSJ Microsoft's definition of openness emphasizes the sheer volume of hardware and software products clustered around Windows and eventually NT, rather than open interfaces blessed by standards consortiums. Isn't volume a more compelling argument for users?

MCNEALY If Gates has to play in an open, competitive, multiple implementation arena, he cannot justify his market valuation. To me, openness is public domain or near-public domain interfaces with multiple, competing proprietary implementations.

Microsoft thinks they should own and control where the brake pedal goes and that there should be only one kind of oil in the world. The world will reject that, Mark my words.

CSJ Microsoft already refers to NT as a "standardized" operating system because of the lineup of hardware and software companies supporting it. How can Unix make that claim?

MCNEALY Standard operating system means high volume. [Gates] believes NT is standardized, but it isn't because it has nearly no unit volume. So it's a potential standard. We all assumed OS/2 was going to have volume, too. Unix today has a standardized, high-volume Unix, and it's Solaris.

CSJ Have we replaced the Unix wars with the Windows wars?

MCNEALY Well, what's interesting is the big flip-flop going on now, with all the Unix vendors working together and coop-

"It will take two or three years to wrest the evolution of the Windows interface away from Microsoft and put it into public management."

— Scott McNealy

erating through X/Open, while Microsoft and Novell are the ones at war.

CSJ The view from Microsoft is that Sun's Wabi technology [to run Windows on Unix] tells developers that you can't sell systems without the Windows APIs.

MCNEALY Most of our customers want to run spreadsheets and word processors as well as run their businesses on their desktops. We might as well use the Windows application floppies that are already out there. But users want to have far more capability than Windows on their desktops when they're trying to run mission-critical business applications.

CSJ Isn't that where Windows NT weighs in?

MCNEALY [Gates] can promise that. We're delivering. We've been doing this for years. He announced Windows in 1983, and it was only usable in about 1990-91.

CSJ How are you going to judge the success of Wabi, which only recently began shipping?

MCNEALY It will be a gradual thing. Wabi will be a multiyear effort that we are continually enhancing and driving and improving. We have very good development partners with Novell, IBM and SunSoft all working together to make this happen. Our resolve is immovable.

CSJ So you hope Wabi will have the impact on Microsoft's market clout that chip clones did on Intel?

MCNEALY Bingo. We're stealing the Windows "proprietaryness" from Microsoft absolutely the way the chip clones did from Intel.

And Wabi is the worst thing that could happen to Intel. The only reason you bought a high-temperature, low-performance, expensive Intel chip over the last 10 years was to run the Microsoft applications. Wabi will bring those applications to every RISC Unix platform in the world.

CSJ Gates says a critical, high-sol-sant product such as Windows belongs in the hands of the one company dedicated to its innovation.

MCNEALY Wouldn't it be great if there was only one publishing company in the industry so we knew what the truth was from one source? Well, Gates is saying, "My interface is the truth, so let's have just one source." Gimme a break.

CSJ Assuming the COSE alliance accomplishes the creation of a common "dashboard" for Unix systems, won't the sheer volume of Windows and NT make that a small victory?

MCNEALY No, because we will have the Wabi applications running on all X-based Unix machines. We will have the Common Desktop Environment being supported by IBM on all its Unix machines and on OS/2, and by Digital, HP, Sun, Novell and The Santa Cruz Operation. That is very significant volume.

CSJ What do you think of the description of Microsoft as the "IBM of the 90s"?

MCNEALY I think that Microsoft has a much brighter guy at the helm, so it's much more dangerous. ☐

Keeping a Grip on User Expectations

Honest talk about client/server pitfalls can help prevent staff frustrations

Dispelling misconceptions that client/server development is a panacea for dramatically cutting costs, speeding systems into production and boosting worker productivity is among the most challenging management issues of the day.

As information systems managers tell it, too many senior business executives have been seduced by glitzy advertisements and vendor presentations that tout effortless systems integration and state-of-the-art yet easy-to-use development tools. Their unbridled enthusiasm has filtered down to end users, who have come to view a point-and-click environment as a cure-all for system ills.

Amoco Chemical Co. in Texas City, Texas, for example, is in its "very infancy with client/server," said systems development supervisor Fred Christian. "But management goes to [vendor] demonstrations and sees all of this point-and-click graphical user interface magic that's so simple and comes back and says, 'Why can't we do something like that?'"

Christian added, "Management wants things done quickly and to start reaping the benefits of client/



Sara Lee's Charlie Walton: Bosses don't understand real complexity behind point-and-click environments

BY JULIA KING

server as soon as possible. "I have to explain that it won't be painless and that it will take 12 to 18 months to go through the transition."

Mark Factor, MIS director at Au Bon Pain, a Boston-based chain of French bakery cafes, has come up against similar misconceptions.

"Customers out in the businesses have the perception that what they want is something as simple as a flashlight but that when IS gets hold of it, we turn it into some huge sky beam," Factor said. "There's an overall perception that client/server is something that's pretty quick, dirty and easy but gets overblown once IS gets a hold of it."

Moreover, he said, delivering applications often serves to increase expectations even more, which makes meeting those hopes a lot like taking aim at a moving target.

"The real issues with bringing client/server projects to market deal with managing expectations and controlling the scope of projects," said Paul Kannerman, an associate partner at Andersen Consulting in Dallas. "The technology is the easy part."

LOWERING EXPECTATIONS

Disparities between expectations and reality usually begin with cost reductions, which average 15% to 20% — not the 30% to 40% most people want to believe, the consultant noted.

And while well-received by most early users, many of the new applications Kannerman has seen offer neither the performance nor the integrity of mainframe-based systems. Moreover, client/server applications built to give users a graphical user interface — not an unusual goal, he added — rarely yield the long-term productivity gains management hopes to achieve.

For all these reasons, early applications are guaranteed to take longer than initial expectations, frustrating everyone involved, according to both analysts and IS executives.

For IS shops, the key to narrowing the gap between expectations and

reality is to include users in client/server projects from the beginning. After that, constant and honest communication is needed between both senior management and end users, who must be reminded of the steep learning curve IS is navigating.

"Managing expectations is merely delivering what you promise," said Mickey Lutz, director of technology management at PHH Fleet America in Hunt Valley, Md. "If I were doing it all over again, the expectations I'd try to put forth would be that our first go-around [with client/server] is not going to be swell and that it will take some iterations to get it right for our environment."

In Lutz's case, it took two developers more than a year to build a client/server vehicle maintenance management application designed to operate in the company's former IBM OS/2, LAN Manager environment. But upon completion, developers discovered that the application could not adequately handle 100 users processing more than 50,000 transactions daily from a 5G-byte database.

"There were gaps in performance and stability," Lutz said. "We underestimated platform requirements, and the mix of hardware and software from multiple vendors was very difficult to manage." Overall, he added, "tuning tools are limited, and there is very little [vendor] guidance for capacity planning."

In the end, Lutz's team scrapped OS/2 and LAN Manager for Novell, Inc.'s NetWare and a Sybase, Inc. database running on Sun Microsystems, Inc. servers. Performance improved but remains less than optimal.

"Now, users call multiple-second response times lightning because of what they got initially with OS/2 and LAN Manager," Lutz noted. And forget looking to vendors for assistance,

he added. "There is no finger-pointing because vendors don't even return your phone calls. There is minimal support. The level of product support [for client/server products] is maybe 10% of what you'd get with products in the mainframe world that cost a lot more."

REALITY vs. PERCEPTION

Communication misfires can send the wrong message

IS MANAGER SAYS:

Here are prototype screens for the new marketing support applications.

IS MANAGER SAYS:

In the long run, moving to client/server should reduce our overall IS costs. In the near term, costs will go up because new hardware, software or networks are needed and IS personnel must be retrained.

IS MANAGER SAYS:

Client/server application development is an iterative process in which users design what the final application looks and feels like.

USER HEARS:

The application is near completion.

USER HEARS:

Client/server computing will decrease IS costs.

USER HEARS:

I can have anything I want.

Senior management and end users must also be made aware that the rapid application development times they have been sold on are not all that rapid, according to Charlie Walter, a senior programmer at Sara Lee Corp. in Chicago.

Using tools such as Microsoft Corp.'s Visual Basic, developers can indeed quickly create and then modify prototype application screens according to users' specifications. But what many users fail to comprehend, Walter noted, is that layer upon layer of logic to support database integrity and Windows functionality must be built beneath those screens.

"To users, it's all just looks like point and click. It's very difficult to get across the true complexities," Walter said. "Once they see prototype screens, they get the impression

(Continued on page 50)

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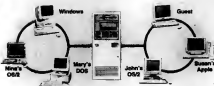


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(Continued from page 47)

an application is just about finished. People say, 'I have a meeting in Europe at the end of the week. Can you whip that up so I can show them?'"

Working with key users from the start, it took three developers eight months to design and construct a new application for use by Sara Lee's 150 divisions to aggregately purchase commodity items, Walter said.

While end users' expectations for the most part revolve around system performance, senior managers are concerned with costs. Here, too, honesty is the best policy, IS directors noted.

At Pacific Gas & Electric Co. (PG&E), for example, reducing costs is the goal of a multimillion-dollar client/server-based customer information system (CIS) project slated for completion by the end of 1995. By

sponsor of PG&E's CIS project is the vice president of marketing and customer service, who hand-picked the project's manager.

Equally critical to the project's success has been the participation of advisory boards comprised of business users and technical personnel.

Also, Similia said PG&E's IS group divided the project into three phases — analysis, design and construction — and has returned to senior management at the end of each phase to get a renewed commitment to the project as it stands at any particular moment.

As of September, analysis and design had been completed, and IS had received authorization to proceed with construction, Similia said. "By dividing the project into phases and revisiting it each time, we're providing additional information and ensuring that senior managers have the information they need," he explained.

From an end user's perspective, PG&E customer service assistant Bob McDonald, the project's lead business analyst, said the CIS project is exceeding his expectations. "I've been in the field 27 years, and I have never before been on a project like this," he said. "I was around 22 years ago when the current system was designed, and then there was very little input from the business side. Now we hold a lot of user review board meetings, giving users a run-through of how we're designing the system."

In the final analysis, managing the expectations that crop up around client/server hinges on making it clear that the learning curve is a lot higher than you would expect and that tools are immature, said Roy Scutro, a managing partner at Ernst & Young who specializes in client/server projects in the insurance industry.

"The bottom line is it looks fairly easy when you start, but it takes a long time to get right a complex application in a truly distributed environment," Scutro said. ■

King is a free-lance writer based in Ridley Park, Pa.



P&H Fleet America's Rickley left: "Managing expectations is merely delivering what you promise"

Once the application was deployed, the company's base of "disgruntled VAX users were pleased with anything we gave them," he said. But more experienced users were disappointed with custom applications that behaved much like off-the-shelf Windows applications.

Gail McLinn, a microcomputer analyst and user of another client/server purchasing application at Sara Lee, agreed that involving users from the outset is necessary. As an experienced Macintosh user, she was "pretty specific about how I wanted the new application to work."

"But my take on the expectation thing is that programmers, generally versed in systems and programming languages, take users' requests and interpret them according to their own abilities," she explained. "And there can be quite a gap between their abilities and user requirements."

any standards, the CIS is a huge project, involving 24 major subsystems, 216 dialogs and 650 windows.

"From a performance, standpoint, management wants us to provide users with the most efficient system, but not a Cadillac. It's a big concern with something this large that you're not putting any frosting on the cake," said Al Similia, manager of system construction and integration for the CIS development project.

"We've already got higher expectations for the system than we're possibly going to be able to deliver," he added. "If everybody's 'nice-to-haves' were there, we'd be building forever."

FIRM MANAGEMENT COMMITMENT

Similia said the most effective way to rein in expectations about both costs and functionality is to first secure an unflinching commitment to the project from top management. The chief

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MAINFRAMES



Data Centers to the Rescue!

o company after company, the people responsible for mainframe and data center computing for the past 20-odd years are being asked to tend servers out in user land.

"All of a sudden, our client community is realizing that servers require care and feeding," said Brian Brookbanks, team leader at Nova Corp., an energy and petrochemicals concern in Alberta, Canada.

"Managers in areas with servers are beginning to see, too, that they need one professional to provide IS kinds of services for every 10 or 15 workstations," Brookbanks added. "These are accountants who don't necessarily want to be IS people."

Brookbanks' group has taken on that task for a couple of end-user groups, doing backups and software

*More end-user
departments are
turning to
mainframe staffers
for help with service
and support*

upgrades, among other things.

While there is no research yet to support this trend, the anecdotal evidence is mounting. In most cases, the end-user department approaches the information systems group, although some mainframe operations types are starting to survey their user base

to find out what needs they have.

Generally, the wave starts as just a ripple with one or two departments coming to IS for help. But as word spreads, it can cause an outpouring of demand, with IS struggling to keep up. At Air Products and Chemicals, Inc. in Allentown, Pa., the data center houses 40 servers — about half of the total used companywide.

"We're installing a server every two weeks," said H. William R. Townsend, manager of computing services operations at Air Products.

"We're putting bet-your-business applications on the most fragile technology available. But it will be OK because MES will make it all right."

But the job is not as straightforward as it might appear at first blush.

End users and IS need to work

BY JOHANNA AMBROSIO

out what IS will do for them. At the same time, the data center folks must shore up their knowledge of PC software and hardware, networking and network operating systems.

- Among the issues to iron out are:
 - What tasks does IS take on, and what does the end-user group do?
 - How will those tasks be performed?
 - If IS handles backup, are the backup tapes stored off-site, given to the end-user group or both? If disaster strikes, does IS recover the server?
 - If IS does exactly what and how it is told, who is held accountable?

"A lot of service-level negotiation has to take place," said John Osborne, manager of computer operations at Tennessee Valley Authority in Chattanooga. "Vendors are marketing directly to my end users now," he said. "Systems are showing up at my door that I didn't even know were coming. That's not a good position to be in."

James E. Spangler, computer operations manager at United Parcel Service, Inc. in Mahwah, N.J., advised, "Be straight with users. Tell them the things we can do for them and the things we don't want to do."

That was the approach Air Products took with backup. "Our policy is we don't leave the data center," Townsend said. "So we do everything remotely, or they do it themselves."

RESHUDDING STAFF IS KEY

While IS professionals are educating user departments, they must also educate themselves.

"Supporting PCs is a different ball game from what they have been doing," said Len Eckhaus, president of the Association for Computer Operations Managers in Orange, Calif.

Most data center staffers also need to learn LANs so they can assist with data backup and recovery.

"LAN-developed software is the thing challenging us right now," Townsend said. "We don't develop it — the user group does — but they want us to keep the code for them after the application is done." But in most cases, these are the people who

are still supporting the mainframe legacy systems on top of new duties.

"Being a good mainframe manager, I've rightsized our operations staff," Brookbanks said. "Now we have all these 8mm manual tape devices [used to back up end-user servers] with nobody to mount the tapes."

"The past two years have been a madhouse," Osborne added. "The number of new systems coming on-line is continuing to increase, but the number of legacy systems we're supporting has not declined."

The saving grace can be that the mainframe operations have been automated to the point where someone who had been watching a console to track MVS performance, for example, can now be redeployed.

"Know thy staff," said Hampton M. Golsan Jr., an operations analyst at Abbott Laboratories in Abbott

Park, Ill. "You certainly can't afford to hire everyone you need. So take a console operator and spend \$4,000 to have him or her become a certified network engineer."

Despite the challenges, forward-looking data center managers are volunteering for duty. One reason is survival. As fewer mainframes are brought in or as more are displaced, babysitting the servers means work for at least some of the mainframers.

"Operations people need to view this as an opportunity to expand," said Arnold Farber, president of Farber/La Chance, a Richmond, Va., consulting firm. "A lot of people don't want the additional responsibility, but the smart ones will go for it." ■

Ambrosio is a Computerworld senior editor, systems & software. Her MCI Mail address is 599-8003.

MAINFRAME MAKEOVER

At the Automobile Club of Southern California, the mainframe has quite literally picked up a whole new image.

The American Automobile Association affiliate is using its IBM 3090 mainframe to host a client/server imaging application for 250 insurance adjusters at its home office in Costa Mesa.

The mainframe stores images of the paperwork related to about 550,000



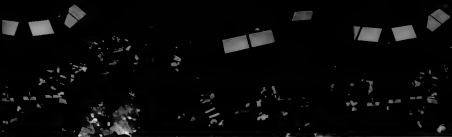
Frank Bernazzani eyes images for claims and

auto insurance policies, as well as photos of the cars. When a new vehicle is registered or a registration is changed, a digital photo is taken and stored on mainframe-controlled optical libraries. The client workstations are mostly MS-DOS-based.

"We're using the photos now for the inspection process," said Frank Bernazzani, manager of technical services. "We're looking at using it for the claims area." For that to happen, however, there had to be improvements in the image quality stored and retrieved on-line, and this is just beginning to occur, he added.

This is just one example of how the mainframe is changing its stripes at customer sites around the world. But the metamorphosis of the host machine into a giant database server or file server is happening very slowly.

"The mainframe is just starting to play more of a server role," said Bob Sloan, director of client/server computing at IBM's mainframe group. One way IBM will address this, he added, is to make it easier for data center staffers to manage LANs from the glass house. "I can hold you a rack that will hold 100 LAN servers so you can save some space and put some organization around the servers," he noted.



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of companies, industries,
and all those other
us don't understand?

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Mainframes, what else?

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By being linked to a mainframe, every desktop PC and workstation—even if it's part of a LAN—has access to infinitely more information than it would have otherwise. And since for businesses like this, time literally is money, companies have come to depend on mainframes to give them access to that information instantaneously. 24 hours a day, 7 days a week.

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SURVEY

Server Market Heats Up

New products such as Microsoft Corp.'s Windows NT promise to stoke the competitive fires at the enterprise server level — one of the few higher-margin server targets remaining. But the NT battle will be an uphill one against Unix platforms, which are firmly entrenched in both the technical and the commercial server environments.

Many sizable operations among the Fortune 1,000 have begun transforming their technology investments to support large client/server-based networks, according to a recent Dataquest, Inc. survey of 250 information systems and network management executives.

Some 85% of the executives surveyed said they use their main computer system as a server rather than as a time-sharing machine. Yet the majority of server platforms are still handling smaller groups of users (see Figure A be-

The fight for a larger

share of the Unix/Intel Corp. server market — among operating systems such as SunSoft, Inc.'s Solaris, Novell, Inc.'s UnixWare or The Santa Cruz Operation's SCO Unix — will create some interesting vendor jockeying as these companies stake their claims in the fast-growing "upsizing to Pentium processors" market.

When it comes to spending their money, server CPUs and board upgrades garnered the "highest priority for current expenditures" among the survey respondents (see Figure B), followed by shrink-wrapped application software. Tools and applications are likely to take

over in 1994 as the most pressing expenditure for the full transformation to client/server-based computing.

A majority — 76% of the 250 — reported obstacles (see Figure C) to making the move to client/server-based computing in their organizations. Software development costs topped the list of roadblocks for both system software and applications, followed by the user learning curve and other organizational issues such as training costs. ■

Written by Bradford W. Day, a principal analyst in the client/server systems group at Dataquest, Inc.

FIGURE A

Client/Server Installation Profile

(Respondent base: 250 IS and network management executives)



FIGURE B**Current Expenditure Priorities (Key Areas)***(Multiple responses allowed)*

NO CURRENT (OR PLANNED) CLIENT/SERVER EXPENDITURES	30
SERVER C/Ps (INCLUDING BOARD UPGRADES)	26
APPLICATION SOFTWARE (SHIM-WRAPPED ONLY)	12
SYSTEM SOFTWARE	10
DEVELOPMENT TOOLS (4GL, 3GL, CASE)	10
APPLICATION SOFTWARE (DEVELOPED IN-HOUSE)	8
DISK ARRAY HARDWARE	8

FIGURE C**Current Obstacles in Moving to Client/Server**

SYSTEM SOFTWARE DEVELOPMENT COST	16
APPLICATION SOFTWARE DEVELOPMENT COST	15
USER LEARNING CURVE	12
IS SKILLS KNOWLEDGE IN CURRENT ORGANIZATION	8
NEW PERSONNEL REQUIRED	8
LACK OF CLIENT/SERVER COMPUTING STANDARDS	5
OVERALL TRAINING OF PERSONNEL TOO EXPENSIVE	5

The client/server computing market, estimated at \$11.6 billion in 1992, is projected to hit \$23.3 billion by 1997.

Some 25% of 250 IS execs surveyed are planning to downsize their applications base to client/server systems in the near term.

Dataquest estimated that by the first half of 1994, the downsizing trend will accelerate to 40% to 50% of all major corporate IS installations.

PRODUCT REVIEW

Information Builders' EDA/SQL

Cost-effective choice for legacy data access; relies heavily on 4GL

The Client/Server Journal's New Product Review is an evaluation based on interviews with major users of corporate, government and educational installations. The product under evaluation is being used in a production environment.

PROS / CONS

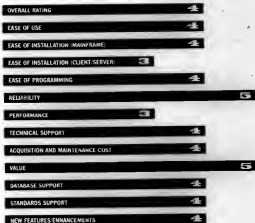
+ Evaluators found EDA/SQL to be reliable and very capable of meeting the promise of cross-platform multiple database access from PC to server to mainframe.

- Rough client/server LAN and PC installations and a reliance on knowledge of Information Builders, Inc.'s Focus fourth-generation language surprised some of the users.

RATINGS

EDA/SQL

Ratings are based on user expectations on a 1-to-5 scale, where 1 is below expectations and 5 is above expectations. Ratings are based in order of importance to users.



Information Builders' Enterprise Data Access (EDA)/SQL is a rare client/server beast. It accomplishes many aspects of the promise of ubiquitous data access—it can obtain data from nearly any database on any platform and bring it to a workstation—and it has almost no direct competition.

"It's a product that solves a very specific and very critical problem. When you need to obtain data from mainframes, there are very few other ways to do this that are as cost-effective," said Judith Hurwitz, president of Hurwitz Consulting Group in Watertown, Mass.

Four evaluators at large user organizations running a variety of databases, platforms and networks report that it does just that. Once running, EDA/SQL meets ease of use, functionality and reliability goals. But installation and programming provided some obstacles for the sites.

The format for this evaluation was developed by Howard Rubin & Associates, with assistance from Technology Investment Strategies Corp. The questionnaire for EDA/SQL was created with assistance from Hurwitz Consulting Group.

EASE OF USE

The evaluators found EDA/SQL easy to use for Rdb, DB2 and Oracle, but IBM's IMS was harder to access and required more extensive use of Focus than some users expected.

Education 1: "We found it fairly easy to use. Once we got some working examples, the staff picked it up very quickly."

Industrial products: "They advertise that you just need to know SQL and the API, but because the bulk of our data is in IMS, it requires a little more knowledge of Focus than we thought."

"It runs against DB2, but it doesn't work with IMS without a tremendous amount of work. Compared to the other products on the market, it was the easiest to understand."

EASE OF INSTALLATION

(Mainframe)

Information Builders' experience on the mainframe helped smooth installation, and the evaluators reported no problems.

Industrial products: "The mainframe was relatively easy."

Education 2: "Our installation on an IBM mainframe was a breeze."

EASE OF INSTALLATION

(Client/server)

The variety of PC LAN configurations and relative lack of in-depth client/server experience made installation more difficult.

Industrial products: "We ran into a brick wall when it came to the PC. We don't

have a lot of control over what we have on the PCs. So consequently, each installation was a new territory for the Information Builders people, who did the installation."

Education 2: "When we tried to establish the client/server communication, it took at least two weeks before we were able to get it going. There are a lot of people at Information Builders who probably know the mainframe area and some other people that probably know the PC area. But knowledge about the combination of both was kind of hard to find within their organization."

EASE OF PROGRAMMING

Programming and database help are required to get up and running with EDA/SQL, the evaluators agreed. But the experienced Focus users had a shorter learning curve.

Education 2: "We've been using Focus for a long time. From the Focus perspective, it is very simple, very straightforward."

RELIABILITY

No major problems were reported, and minor ones were quickly addressed by the vendor.

Education 1: "It seems to be pretty reliable. We had some small issues with the stability of the VAX server early on, but we seem to have those ironed out."

Industrial products: "It give it a good rating because given the complexity of what we installed, we haven't had any serious breakdowns of the product. It's been people-type things and not the product that we've had to settle."

PERFORMANCE

There really aren't any benchmarks for EDA/SQL. Its performance cannot be compared to a single environment on-line access. The evaluators were satisfied with its speed.

Education 1: "It has been really good performance going against the DEC Rdb server. We're still working on IMS and could use more overhead there, but it's

EVALUATORS

SITE PROFILES

Installation descriptions for users who evaluated EDA/SQL.

	EDUCATION 1	GOVERNMENT	EDUCATION 2	INDUSTRIAL
PLATFORMS	ES/9000 VAXCLUSTER	VAX 3000 P5/7s	IBM 3084 CIV TERMINALS	MAINFRAME DP 9000s
TIME IN USE	3 MONTHS	1 1/2 YEARS	9 MONTHS	5 MONTHS
NUMBER OF APPLICATIONS	1	1	2	1
NUMBER OF IS SUPPORT STAFF	3	1	1	1 1/2

about what I expected."

TECHNICAL SUPPORT

Depth of client/server installation experience was lacking, but evaluators had no problem getting the right people when needed.

Education 2: "Sometimes, when we found some problems running the product, the branch support people received help from [headquarters], and they were very receptive to our problems."

Industrial products: "The support is good once you get to the right person. They do have competent people at the root of their company."

Government: "The support that we have had is probably the best feature of the whole product."

ACQUISITION AND MAINTENANCE COSTS

Again, comparison is difficult. Users reported significant savings compared with the re-engineering effort that unifying their databases and platforms

FEATURES

EDA/SQL

Allows programmers to write a single API to access multiple databases.

Supports ANSI-standard SQL, major networking protocols and a large number of databases, operating systems and hardware platforms.

A multitool product, EDA/SQL relies on modular client and server components but provides a great deal of flexibility in dealing with incompatible databases.

would require if they weren't using EDA/SQL.

Education 1: "It was hard for us to know because, actually, it costs less than what I would expect for my alternative, which was to move all of my IMS and all

my other machines over to a DB2 environment. It gives us a low-cost option to move into the look and feel of client/server without having to re-engineer my back-end systems."

Education 2: "I think it is a very cost-effective solution for client/server. Our approximate total cost was around \$28,000."

Industrial products: "We had to do a cost estimation on this product before we could even bring it in-house. So in terms of the rental and the time that the individuals have placed into it, it ran about \$120,000. It's going to be a lot cheaper to plug and play than with the other mainframe products."

DATABASE SUPPORT

With support of most of the major databases, EDA/SQL can go against almost any platform. However, it performs better against SQL engines, the evaluators said.

Industrial products: "This goes back to the

Focus issue. We knew the database administration was required, we knew the programming was required, but we just didn't account for the Focus knowledge. Our end users are saying the same thing: 'God, I didn't realize I had to know so much Focus.'"

STANDARDS SUPPORT

Likewise, the major database and networking standards are supported to allow enterprise-wide access.

Industrial products: "They don't support the same road map DCE does."

"Given that we have a large engineering environment that is looking strongly at [the Open Software Foundation's] DCE, [the lack of DCE support by certain PC vendors] could cause us some problems with bringing Information Builders' products in-house." □

Written by Michael L. Sullivan, Computerworld's research director

INFORMATION BUILDERS RESPONDS

EASE OF USE WITH RELATIONAL AND NONRELATIONAL DATABASES: As a SQL-based product, EDA/SQL inherently supports the native database catalog of the advanced relational database. But nonrelational databases such as IMS were never designed to support SQL, and do not support many of the capabilities found in relational databases.

To overcome this problem, EDA/SQL provides the means to set up a relational database-like catalog in which nonrelational data data information must be stored to provide SQL-based access. The catalog must be set and maintained, however, in addition to any native relational database catalog the customer may be using. This is unavoidable with

out database vendor extensions for nonrelational data in their catalogs.

KNOWLEDGE OF FOCUS: There is no Focus knowledge required to use EDA/SQL, unless the user chooses to use Focus as the language for writing Stored Procedures. In this case, knowledge of Datalog Manager and the Focus table language is required.

DIFFICULTY OF PC LAN INSTALLS: Client/server applications are inherently more complex than single platform applications, especially in the OS/2 environment. Tasting between synchronous and asynchronous communications environments also requires spe-

cialized expertise, which our customers typically do not have. For these reasons, we have enhanced both our field and headquarters technical support staffs to the point where we are confident we can help customers in establishing successful EDA/SQL installations.

DCE DIRECTIONS: As a member of the OSF, Information Builders supports the work of the OSF on DCE and has incorporated many DCE concepts into current versions of EDA/SQL. Unfortunately, DCE is still an emerging standard, and a DCE-based implementation of EDA/SQL would not be viable until many key vendors, on whose operating systems we run, support DCE.

Spanning the Legacy Data Gap

Survey finds users combining offerings from independent vendors with homegrown applications

Legacy Data Access Method



- Independent vendor product
- Homegrown tool/system
- Most vendor product
- Other

Biggest Problems with Accessing Legacy Data

Staff lacks expertise

Difficult to integrate

Time-consuming

Hard to maintain data integrity

Time to Get Access Up and Running



- Less than six months
- Other/Don't know
- Seven to 12 months
- More than a year

Top Reasons for Using These Methods

(in order of most frequent answer)

- 1. Most compatible with installed systems.
- 2. Best nonproprietary solution.
- 3. Easiest to implement.
- 4. Best price/lowest cost.
- 5. Best functionality.

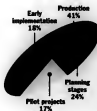
What Vendors Can Do to Make Things Easier

Improve ease of use

Improve functionality

Provide more expertise

Client/Server Status



Updating

When do you plan to eliminate old systems in favor of client/server?



- Less than five years
- Don't know
- Less than one year
- More than five years
- Already have

Setting up desktop applications that can access data residing in heterogeneous legacy systems is one of the biggest challenges for users moving to client/server.

Our exclusive Client/Server Journal survey revealed that client/server pioneers are relying on a combination of homegrown tools and vendor-supplied systems to make legacy databases work with new applications.

Although there are few tools providing all the necessary functions, 56% of 200 information systems organizations surveyed relied on vendor-supplied tools to gain access to legacy data. The majority, however, chose independent vendor offerings rather than host vendor products.

Among the independent vendor solutions is Information Builders, Inc.'s

EDA/SQL, one of the few tools specifically aimed at legacy data access.

Survey respondents reported higher satisfaction levels with vendor tools than with homegrown ones. Compatibility with environments and availability of good, nonproprietary solutions were some reasons cited for selecting certain tools.

Homegrown tool users said integrating components was the most difficult task, followed by the amount of time it took them to develop the system. Users relying on vendor tools said "lack of expertise" on their own staffs was a stumbling block. ■

The survey was conducted by First Market Research Corp. For further information about the methodology, contact Michael L. Sullivan, Trainer, Computerworld, (800) 343-6474.

PRODUCTS

New client/server offerings from Epoch Systems, Tivoli Systems, Apple and others

TOOLS

INTERSOFT, INC. has announced **EXCELERATOR II**, a new release of its analysis and design tool.

According to the company, additional features in this release include a diagram editor for event modeling, a client/server development application guide for training users and support for data-, process- and event-driven design.

Excellerator II runs under Windows, OS/2 and Unix.

The price is \$6,500 per user. For existing customers, an upgrade is available at no cost.

INTERSOFT 3200 Tower Oaks Blvd., Rockville, Md. 20852 (301) 230-3200.

APPLE, INC. has unveiled **APPLWARE**, a set of applications and tools that allow integration of personal applications and business data.

Applications from the vendor include Applix Words, Applix Graphics, Applix Spreadsheets, Applix Data and Applix Mail.

ApplixWare is available on a variety of Unix-based platforms, including those from Sun Microsystems, Inc., Digital Equipment Corp., IBM, Hewlett-Packard Co. and Silicon Graphics, Inc.

Pricing for the ApplixWare product line ranges from \$195 to \$995.

APPLIX 112 Turnpike Road, Westboro, Mass. 01581 (508) 870-0300.

SEER TECHNOLOGIES, INC. has begun shipping **SEER/HPS DEVELOPMENT ENVIRONMENT VERSION 5.2**, an integrated set of software tools for development, deployment and management of distributed applications.

Among the new features are event- and message-based architecture. Advanced Peer-to-Peer Connectivity services for OS/2 and CICS client/server applications and analysis tools for the IBM Financial Services data model, according to the company.

Seer/HPS Development Environment Version 5.2 supports host platforms such as MVS/ESA, DB2, IMS/ESA and CICS/VS. Servers supported include IBM mainframes, PS/2s, RS/6000s and Sun Microsystems, Inc. systems.

Pricing for the product starts at \$125,000 for a six-person development environment.

SEER TECHNOLOGIES 8000 Rogeney Pkwy., Cary, N.C. 27511 (919) 380-5000.



Seer's HPS Development Environment includes analysis tools for the IBM Financial Services data model

INFORMATION RETRIEVAL

The **APPLE BUSINESS SYSTEMS DIVISION OF APPLE COMPUTER, INC.** has rolled out **APPLE-SEARCH**, an information retrieval system.

According to the firm, this customizable product turns unstructured documents stored on a server into an on-line library. It was designed for use in departmental or workgroup settings.

AppleSearch provides users with transparent access to documents in various formats, including word processing, spreadsheets and electronic mail.

The price of Apple-Search is \$1,799 for the client/server five-pack and \$499 for the client 10-pack.

APPLE BUSINESS SYSTEMS 20525 Mariani Ave., Cupertino, Calif. 95014 (408) 996-1010

DATA MANAGEMENT

EPOCH SYSTEMS, INC. has announced **EPOCHSERV 6.0**,

a new release of its integrated client/server data management software products for backup, file migration and volume management.

EpochServ 6.0 includes enhancements for support of multilevel staging, the ability for files to span optical volumes and expanded peripheral support for Exabyte Corp., Sony Corp. and Storage Technology Corp. products, the firm said.

Pricing ranges from \$20,000 to \$40,000.

EPOCH SYSTEMS 8 Technology Drive, Westboro, Mass. 01581 (508) 836-4300.

SYSTEMS MANAGEMENT

TIVOLI SYSTEMS, INC. has announced enhancements to its **TIVOLI MANAGEMENT ENVIRONMENT** systems management software.

Enhancements include tools for managing printing and electronic-mail services across distributed computing environments and availability of the software for IBM's RS/6000.

Pricing for the Tivoli Management Environment Release 1.6 is \$924 per management station and \$825 per managed client.

TIVOLI SYSTEMS 6034 West Courtyard Drive, Austin, Texas 78730 (512) 794-5670. ☐



Enhancements to Tivoli's Management Environment include electronic-mail services

Old Wine in New Bottles

Fair Juliet asked, "What is in a name?" while swooning over Romeo's name. "That which we call a rose by any other name would smell as sweet."

The denoted content is important, not the denoting name or label. Client/server is yet another label on a bottle of computing concepts that have not changed substantially in the past three decades. The real issues facing chief executive and information officers involve reinventing corporate information systems and the organizations they support.

The trend toward client/server is driven by two forces. First, there are 100+ million PCs, with some 25 million of them networked. This density of computing and storage power has coalesced into a critical mass demand for networking.

Second, the economics are inexorable. Large conglomerations of low-cost components are orders of magnitude less costly than proprietary mainframes and minicomputers. The demon is in controlling the mesh of components because distributed processing distributes errors and points of failure as well. Throw in issues such as security control, synchronization of client environments and distribution of software, and one gets the feeling that difficulties will persist for some time.

The essential central concept in client/server processing is messaging, which is the production, consumption and exchange of information among components of any computing resource. Networks are the vehicles of distributing messages, just as processors are the providers of instruction cycles and storage devices are the containers of data.

At Lehman, we have a sizable global network of some 9,000 Ethernet nodes: 3,000 Unix/TCP/IP, 3,000 PC/Novell, Inc. NetWare and 3,000 duplexed into routers, gateways and other network infrastructures.

Client/server architecture is

the rule in all trading floor systems and is guiding development of new back-office systems. PC networked applications are being constructed anew and rewritten using a client/server architecture.

I believe the newness of client/server is in its proliferation, not in its technical fundamentals. This proliferation stems from both the success of Unix workstations and the sheer ubiquity of networked PCs.

With improved PC networks, heterogeneous Unix/TCP/IP/Ethernet and Novell/DOS/Windows environments are quickly becoming commonplace. Most common will be Unix/Windows clients and Unix servers on a TCP/IP/Ethernet network with Token Ring gateway connectivity to legacy applications.

It all sounds amazingly like the open systems scenario. No great surprise. Interoperability is a keynote of open systems, involving the ability of components to easily exchange messages.

Think of open systems, client/server and object-oriented as technologies, while rightsizing is a packaging of products using these technologies. The end game, however, is global enterprise-wide computing — the five-to-10-year quest that lies ahead.

Current tools and messaging protocols are too low-level to allow creation of software that operates equally well locally or globally. Powerful development tools and messaging application programming interfaces are needed that can hide the complexities of a global network.

The essential central concept in client/server processing is messaging.

Client/server, open systems, rightsizing and object-oriented are merely labels on the bottles. The message-based wine inside is what really counts in terms of the nose and the follow-through.

Finally, as food for thought: Juliet may think that a rose by any other name would smell as sweet, but would people eat honey if it were called bee vomit? ☐



DAVID SHERR

Sherr is a vice president in investment banking technology at Lehman Brothers, Inc. in New York. His Internet address is sherr@lehman.com.

IBM Client/Server



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“IBM helped us move as fast on the ground as we do in the air.”

John Harper, Sr. Vice President—Information Services, USAir. USAir wanted

to create the terminal of the future at Pittsburgh International Airport. A place where lines would be shorter. Where baggage handling would be quicker and more dependable.

And everything from check-in to take-off would be easier and less confusing for travelers.

So IBM helped USAir develop a tailor-made system that makes information more

readily available to employees so they can be more responsive to customers. A system that maximizes the power of PCs and integrates a wide range of different manufacturers' equipment. A classic example of IBM Client/Server.

Information is now distributed from the mainframe to 650 PS/2[®] workstations running OS/2[®]. These workstations are tied into hundreds of ticket and boarding pass printers, touchscreens, credit card readers and other peripherals supplied by a number of companies.

The result: USAir employees and passengers now get immediate, consistent and reliable updates on pertinent information. Skycaps use touchscreens and bag-tag printers to streamline curbside check-in. And tower operators can make better decisions about managing gate traffic, resulting in fewer delays. In short, the airport of the future.

If you want a custom-tailored solution that gives your people more flexibility and gives you an edge on your competition, IBM Client/Server is the answer. For more information, call 1 800 IBM-0045, ext. 20.

There's never been a better time to do business with **IBM**.

IBM Client/Server Database Solutions

It's available now - ready to perform on your desktop. A new function-rich, 32-bit relational database you can really trust with your growing client/server network, your mission-critical data and your business.

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DB2/2 includes an industrial-strength DB engine that supports transaction management, concurrency control, security, integrity, and recovery functions. Designed to exploit the power and open architecture of OS/2, it also supports industry-standard SQL for developing portable applications. And it runs your DOS, DOS Windows™ and OS/2 applications requiring online access.

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an Information Warehouse™ solution
for your business.
We've developed an

desktop.



exciting demo diskette to show you just how well new DB2/2 performs - right on your desktop. Call us today for your free demo, or to order DB2/2: 1-800-342-6672; or fax: 1-800-445-2426. In Canada, call 1-800-465-7999, ext. 850. An upgrade from OS/2 Extended Edition or Extended Services is also available.

IBM, OS/2, DB2 and OS/400 are registered trademarks and DATABASE 2, DB2/2, DISTRIBUTED DATABASE CONNECTION SERVICES/2, SQL/DS and Information Warehouse are trademarks of International Business Machines Corporation. Windows is a trademark of Microsoft Corporation. © 1993 IBM Corp.**IBM®**



Lawson Software's Accounting System nets high scores in features, updates

By Michael Sullivan-Trainor

As the Unix-based financial software market shifts into high gear to meet user downsizing needs, a small cadre of companies is staking initial leadership positions among large Fortune 500 installations. The Top 3 vendors and their products competing at this level, according to installation figures compiled by International Data Corp., are FourGen Software, Inc.'s FourGen, Oracle Corp.'s Oracle Financials and Lawson Software Corp.'s Accounting System.

Though it is the smallest of the three players on Unix platforms, Lawson achieved the highest overall satisfaction ratings from its users. This response included top scores in six areas of highest importance to all users surveyed. However, each product had a distinct characteristic that users rated highly.

While Lawson shined in advanced features and updates, FourGen excelled in usability and reliability, and Oracle received top foreign site support and multicurrency ratings.

With the majority of Lawson users surveyed moving to a client/server setup with their financial applications, the product received its second highest rating for speed in covering all its modules to client/server. Other top categories for Lawson were numeric consolidation capabilities and timely updates for tax law changes. The company's lowest ratings were in cost and documentation and on-line help, the only categories in which users gave scores lower than 7.0.

FourGen users gave it high

marks for ease of use, customization, documentation and reliability; it scored an 8.0 in these areas. Low ratings were given for interfacing to other applications, service and cost.

Oracle gets bronze medal
Oracle users were most satisfied with the company's ability to provide reporting capabilities and numeric consolidation, in addition to multicurrency capabilities and local support for sites in foreign countries. Users were dissatisfied with cost and with the inability to provide inexpensive updates, giving that category a 3.6.

Overall, users were most satisfied with their software's ability to manage multiple accounts, implement tax law changes and provide local support in foreign countries. Cost and update expense were the least liked aspects of the products.

Buyers' Scorecard is a user survey of market-leading products conducted and tabulated by First Market Research Corp. in Austin, Texas. For a complete methodology, contact Michael Sullivan-Trainor at (800) 343-6474, ext. 228.

Standard scores

Connecting all modules to client/server	
IMPORTANCE: LOW	SCORE
Lawson	8.5
FourGen	7.0
Oracle	6.0

■ The leading financial packages have different areas of major strength.

Ease of customization	
IMPORTANCE: HIGH	SCORE
FourGen	8.0
Lawson	7.5
Oracle	5.6

■ Importance ratings are based on a 1-to-10 scale, where 10 is highest. Users were asked to rate the level of priority they place on the category when making a buying decision.

Multicurrency capabilities	
IMPORTANCE: LOW	SCORE
Oracle	7.5
Lawson	7.0
FourGen	6.0

Lawson's Accounting System

TOTAL SCORE **79**



RATINGS ARE BASED ON A 1-TO-10 SCALE, WHERE 10 IS BEST.

Would you buy the program again?



REASONS ARE BASED ON THE MOST FREQUENTLY STATED ANSWERS.

FourGen Software's FourGen

TOTAL SCORE **68**



RATINGS ARE BASED ON A 1-TO-10 SCALE, WHERE 10 IS BEST.

Would you buy the program again?



REASONS ARE BASED ON THE MOST FREQUENTLY STATED ANSWERS.

Oracle's Oracle Financials

TOTAL SCORE **63**



RATINGS ARE BASED ON A 1-TO-10 SCALE, WHERE 10 IS BEST.

Would you buy the program again?



REASONS ARE BASED ON THE MOST FREQUENTLY STATED ANSWERS.

Ratings in order of importance



RATINGS ARE BASED ON A 1-TO-10 SCALE, WHERE 10 IS BEST.



PeopleSoft Financials: Good reporting, tough installation

Financials

Computerworld's Firing Line is an evaluation based on interviews with major users at corporate and educational installations. The product under evaluation is being used in live application environments.

■ Evaluators said PeopleSoft, Inc.'s Financials provides good financial functionality but added that its client/server technology was not easy to install, nor did the software provide desired security features.

Users of PeopleSoft Financials said they encountered more difficulties than expected while implementing the client/server-based accounting software. But they said those difficulties were due largely to their own inexperience. This is reflected in low ratings for technical support because users required more assistance than expected. However, the users said PeopleSoft provided high-quality support overall.

Originally released last year, the PSGL general ledger module of Financials is now supplemented by a full suite of other accounting modules. The modules run on DOS/Windows and a range of database servers.

The evaluators participating in this survey included business and systems analysts from a government agency, a securities firm, a university and a utility company. All participants had been using PeopleSoft Financials for at least six months.

The format for this evaluation was created with the assistance of Howard Rubin Associates.

Reliability

The evaluators said the product's reliability was average. They attributed most reliability problems to either their own inexperience with the product and with client/server technology or to unrelated problems with Windows or their networks.

Performance

All of the evaluators said performance was in line with their expectations. They noted that any performance trade-offs—particularly in comparison with their batch systems—were acceptable given the big gains in report and

account customization.

University: "It's not fast, but we know that when we bought it. In the on-line portion, you trade instantaneous results for reduced errors downstream."

Installation

PeopleSoft played an integral role in installing Financials at all evaluators' sites.

They said the assistance provided by PeopleSoft included data migration from other databases or accounting packages, fine-tuning database servers to deliver optimal response; and training the technical staff in client/server issues and specific use of PeopleSoft tools.

Ease of use

Evaluators said Financials is no more difficult to use than expected. They said end users had little difficulty becoming acquainted with the Windows-based user interface and that most functions were readily utilized by financial and technical analysts.

University: "It's easier than we expected, but you have the

same analysis and design constraints that you have with Cobol."

Financial functions

The evaluators agreed that the business analysts in their organizations had driven the decision to use Financials after demonstrations and competitive analyses. They concurred that consolidation and allocation functions worked as expected.

Government: "Budgeting was originally our driving function, but nothing fit our needs. We developed our own [budgeting application] in Microsoft Excel and copied it to PeopleSoft using one of their tools."

Securities: "We liked the different tree structures and the roll-ups. The treasurer of the company went for a demo, and he wanted it immediately."

Data entry

Strong in reporting and standard accounting functions, Financials currently lags in batch data entry, the evaluators said. In particular, they said its method for performing field validation and checking sometimes hindered performance. However, the evaluators noted that they were aware of this trade-off prior to the purchase and did not consider it an overwhelming issue.

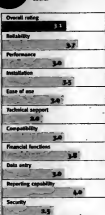
Government: "Validity and field checking will slow [the data-entry staff] a bit, but it's really not geared for high-level data entry. PeopleSoft is apparently delivering a batch entry module."

Securities: "If you use a lot of codes or multilevel edit, it will be slow."

Utility: "PeopleSoft" is doing

PeopleSoft's Financials

Ratings are based on user expectations on a 1-to-5 scale, where 1 is below expectations and 5 is above expectations. Ratings are presented in order of importance to users.



work on the batch functions, but we're going to build our own front-end and batch editing."

Reporting capability

The evaluators gave their highest rating to the reporting functions included in Financials. Indeed, reporting played a critical role in their purchase decisions. Although the evaluators said report creation was still too difficult for casual users, they agreed that it was a faster and cheaper alternative to Cobol or a fourth-generation language reporting tool.

Utility: "The financial folks are the most impressed. What we have today is cumbersome. Information systems won't be in the business of writing reports any longer for the general ledger."

Security

Government: "Security is one of the weaker issues with PeopleSoft. They don't include too much of it."

Education: "It's more difficult to establish than we thought. We'd never seen a package that doesn't tie in with our security package, but this does not."

Written by Computerworld senior editor Gerry Ray.

PeopleSoft responds

► **Security:** PeopleSoft has recently improved security through features introduced in Financials 3 and PeopleTools 3. We've extended our menu-level security and added our own new query and ad hoc reporting tool, which is included in our existing security system. PeopleSoft also intends to extend the security in our financial applications using the data-level security already available in

our human resources products.

► **Data entry:** In general, the world is moving away from the extensive need for high-volume data entry, but in some cases it is still required. We have applied new data-entry techniques to our high-volume data-entry requirements in our human resources product line, and we will be applying them to our financial products.



A Salute To The Next Generation.

There's one lesson that we should never forget.

Computers don't drive the computer industry. People do.

And the features that matter most will always be the human ones.

Like ingenuity. Commitment. And determination.

That's why developing great people is every bit as important as developing great technology.

With that goal in mind, Computer Associates recently established a generous New Leaders College Scholarship Program to help develop

SCHOLARSHIP WINNERS

Martha Blackburn,
Armstrong State College

Albert Crowley,
Villanova University

Peter Foley,
*University of Arkansas
at Little Rock*

Brent Law,
*University of California
at Fullerton*

Mehul Mahimtura,
Pace University

Jonathan Morgan,
Texas Christian University

Eric Rimmer,
*Brighton Young
University*

Bernard Rice,
University of North Florida

Olga Shumsky,
*University of Missouri
at Rolla*

Anthony Smith,
Pace University

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the next generation of leaders.

The first winners of this scholarship, as shown, include top students from colleges and universities throughout the country. They were chosen by a distinguished nominating committee from business and academia.

At Computer Associates, we understand that, now more than ever, it's important to do what we can to develop the future leaders of our country.

After all,
if we don't,
who will?

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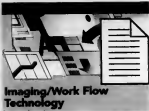
Three Technologies. Interactive. In Touch. On Target.



**Client/Server
Computing**



**32 Bit Operating
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**Imaging/Work Flow
Technology**

*Feb.
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The Practitioners Forum

Your candid assessment starts here — nine status reports from top practitioners. Computerworld moderators navigate a frank and forthright interchange about these three technology uprisings. Esther Dyson, Charlie Babcock and John Gantz lead practitioners from Kmart, Connecticut Mutual Life, the Royal Bank of Canada, and more. Q & A from the audience of top IS executives and management.

The Solution Labs

You design your own program to meet top-flight vendor teams on your own terms. A series of labs formatted, staffed and equipped to meet your need to learn fast. High-power, high-impact learning that meets your standards for solid, reliable information.

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Two CTOs, from BancOne and PacifiCare, tell you what their companies have learned about these technologies.

The Uncharted Territory

An exclusive look into the top forecasts and analyses from The Research Board.

For more information,
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OFFSHORE PROGRAMMERS:

REMEDY

AT ISSUE: Some people claim foreign programmers are stealing American jobs. Others

think they are a boon to the computer industry. Taking sides in this debate, a CEO at an offshore contract house and a U.S. contract consultant go head-to-head.

SOUND OFF!

Foreign skills put U.S. workers to shame

I am a condemned man. I am condemned by others because I have not only hired foreign programmers but also started a company that acts as a conduit between Russian contract programmers and U.S. companies. According to some people, I may as well be taking food from the mouths of American children, what with the harm I am inflicting on their parents by taking away solid American programming jobs and shipping them overseas.

The thinking is purely nationalistic: If he's not a Yank, don't hire him. A recent *60 Minutes* episode, for instance, made it sound as if U.S. programmers were all standing in the unemployment line because the industry has put millions of non-Americans to work around the world in the past decade.

The point is that hiring foreign programmers not



► STEVEN KRULE: Hiring foreign workers is good for U.S. and global economies

only helps the U.S. compete in the global market but also helps foreign economies, which promotes stability and growth worldwide. And I happen to think there's actually a shortage of good programming help here -- a gap that talented foreign labor can fill. If U.S. companies had enough internal staffers to handle their needs, why would the industry spend about \$18.2 billion (or 4.4% of the average information systems budget) in 1992 on outside systems management contracts?

Capability, not nationality

At each of the software companies I managed during the past 13 years, I have hired several foreign programmers who immigrated to the U.S. I've hired French, Australian, British, Russian, Mexican, Cuban, Vietnamese and South African

citizens. My company paid them the going rates, whether they worked in a U.S. office or overseas.

Companies hire contractors based on capability, not nationality. When a firm such as The Santa Cruz Operation needs someone to handle Unix programming, it's only natural that English contractors end up high on the list. These people are highly skilled because Unix has a huge installed base throughout Europe.

Before founding Red Square Software in March 1993, I helped establish an offshore research and development center in Moscow for Pick Systems' sales and marketing operations in Eastern Europe in 1991. I found Russian engineers, scientists and technicians to be well-trained and innovative.

The average programmer there studies five or six programming languages

or RUIN?

and operating systems before graduating from a technical institute. Because computer resources were very limited in the former Soviet Union, only the best have earned the right to enter the profession. They write exceptionally tight code and are very good at maximizing computer resources (disk and memory). It may sound corny, but I think we are obligated to put these people to work developing software for business rather than missile-guidance systems.

The industry is not taking advantage of low foreign wages or sacrificing American jobs; we're doing the world a favor by upping the standard of living in many countries. The more our neighbors make, the more they have to spend on U.S. goods and services, which creates more American jobs.

Russia, for example, is now buying nearly 2 million PCs per year, the majority of which are running U.S. software. Registered joint ventures between U.S. and Russian companies have risen from 131 operations in 1989 to nearly 2,500 this year. These sales contribute to high-growth American companies that create jobs both at home and abroad.

It's true that most organizations that use foreign programmers pay less for them. In Malaysia, for instance, a programmer receives \$1,000 a month on average. But that's three times higher than the average college graduate in that country receives. Our programmers in Moscow earn five times more than the average citizen.

The upshot? By paying what amounts to above-average wages, foreign engineers will be more likely to choose to stay home than take jobs in the U.S.

However, using lower-priced labor works only if companies pass on the savings to customers in the form of lower software costs or, for

Foreign skills, page 124

U.S. programmers can't fight low prices and rate fixing

I have weathered recessions, layoffs, diminishing information systems budgets and Section 1706 (tax reform that tightened rules on free-lance programmers) in my 20 years in the information technology industry. Just when I thought the worst was over, I find that I am competing



► LOUIS BUNINCONTI: Foreigners steal jobs and still receive U.S. aid money

with cut-price foreign technicians from countries such as India, the Philippines, Hong Kong and the former Soviet Union.

I do not want to sound like a complainer. I am a firm believer in the free enterprise system, which has enabled me to earn a living in the last 11 years as an independent contract consultant. But how can I and other American technicians compete with foreign consultants who get paid up to 70% less because the cost of living in their countries is so low?

More dangerous, however, is that this situation has led to more than competition — it has led to rate fixing. In some cases, companies have fixed the rates they will pay American contractors based on the unrealistic rates foreign-based contracting firms charge. One multinational telecommunications firm, for instance, used to pay \$400 to \$450 a day for a Cobol CICS programmer with four to five years' experience. Now, the company pays only about \$225 to \$250 a day for that same programmer.

I have on occasion been asked by Fortune 50 companies to reduce the rates of my contract services from the \$700 a day range (the going rate for someone with my background and years of experience) to about \$425. I was making that as a programmer many years ago!

Those are the situations I know about. Add to that the rumors about contract companies falsifying business visas and revenues just to make cheap labor available in the U.S. and you get a situation that stinks for U.S. programmers.

What really drives me mad is that these same countries that are stealing our jobs are receiving billions of our tax dollars in foreign aid each year. I remember a time not too long ago when consulting firms were afraid to own or rent foreign automobiles because it

Rate fixing, page 124

In Depth: Remedy or Ruin?

Rate fixing

CONTINUED FROM PAGE 125

might hurt their image. Boy, has that attitude changed. In New Jersey alone, for instance, there are at least 50 foreign contractors working in residence.

This situation did not happen overnight. Back in the early 1960s, Burroughs Corp. (now Unisys Corp.), which had

signed a sales agreement with Indian conglomerate TATA for hardware, ran into difficulty because of an Indian law prohibiting direct payment to American companies. The two firms agreed on a barter: TATA would provide Burroughs with Indian consultants as payment for the hardware. This might seem like a pretty solid

business venture, but it ended up as a kind of indentured servant network. Often five or six TATA consultants were housed in two-bedroom apartments, getting paid \$14 an hour — about 40% below the prevailing rate at the time — plus free room and board. That legacy continues to this day in the long run, companies will get

what they pay for. Many foreign coders are technically knowledgeable, but their communication skills leave much to be desired. I worked with some foreign programmers when I was a senior technical manager at a bank years ago, and I found the situation difficult. I know I'm a fast-talking New Yorker, but it's tough doing business when you have to write down all the instructions.

More important, perhaps, is that foreign coders do not have the business or subject expertise U.S. programmers have. How can foreign programmers question a specification without business expertise? How fully do they understand our business terms, payroll deductions, accounting techniques or business practices? They might be good coders, but they don't understand the business purpose of the programs they write.

One large U.S. insurance company found this out the hard way. It hired a group of foreign programmers to handle a CICS project because they were cheap. But about six months into the project, the firm fired the contractors because communication kept getting impaired.

The U.S. has lost the lead in manufacturing in the services sector to follow? One way the government has tried to increase the cost of foreign goods is through import taxes. Maybe it should place tariffs on foreign services performed for U.S. firms.

But imposing such tariffs might not do any good. Just as cheap labor keeps the cost of foreign manufactured goods down, so too will it keep the cost of overseas services down, taxes or no taxes.

I urge data processing professionals everywhere to write to lawmakers about foreign service providers. One thing seems certain: If foreign attorneys were taking U.S. lawyers' jobs, Washington would be on the situation in a flash.

Businessweek is an independent contractor at GTW Software Systems and Accounting Services in Valley Cottage, N.Y., specializing in computer-aided software engineering, JAD and structured methodologies. He is currently on assignment for the city of New York's Financial Information Services Agency.

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Source: Survey of **Computerworld on CD** subscribers, May 1993

Foreign skills

CONTINUED FROM PAGE 125

internal IS, faster delivery of software. If that's not happening, then we should be attacking those companies' management — not their offshore programmers.

The problem with foreign programming is not that they're cheaper than U.S. coders but that they may actually reveal weaknesses in our own work force. Foreigners have the talent, skills and work ethic that put many of their American counterparts to shame. U.S. programmers are afraid.

Kraus is chief executive officer of Rod Square Software, a Newport Beach, Calif., contract services company with operations in the former Soviet Union. He is also chairman of the Software Council of Southern California.

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RANDOM NOTES

On information systems management ...

"The silent, first-time managers lack the responsibility to control a project rather than create, enable and liberate their staffs. There's a shortage of good role models for [new managers] to emulate. Most mid- and senior-level managers were originally promoted based on their technical expertise and now are the starting or developing point of the management people."

TRAINING

"All those Cobol programmers in the future unless they get themselves retooled. The organization of the future won't have the money to retrain them."

— Robert A. Zawacki,
professor of management and
international business,
University of Colorado at
Colorado Springs

B U S T

You say tomayto, I say tomahto

IS managers and their bosses at 12 New York- and Chicago-based companies have different priorities when it comes to rating the top 12 issues facing their organizations in the next year.

The following issues are ranked according to overall importance.

CIOs Rank
IS

- Aligning business strategy and information technology investment
- Learning from practices in other organizations
- Measuring information technology business value
- Customer service skills in IS
- Implementing mission-critical client/server applications
- Assessing emerging technology
- Motivating today's IS professionals
- Employee empowerment in IS
- Emerging IS organizational interface issues
- Forecasting and measuring benefits of business process engineering projects
- IS budgets for 1994: establishing strategies and priorities
- Business process re-engineering skills
- Rapid application development in Windows
- Extending the life of legacy systems
- Strengthening the general business knowledge of the IS staff

Source: Oberman, an IT executive at Morgan Stanley, N.J. Compiled by Linda Galt, a New York writer in New York.

CO, OR, AZ

Applications Development

- COBOL/SAMCOBOL
- FORTRAN/COBOL/Basic
- BASIC/COBOL/ALGOL
- ALGOL/COBOL
- Basic/COBOL
- COBOL/Basic
- BASIC/COBOL
- BASIC/COBOL

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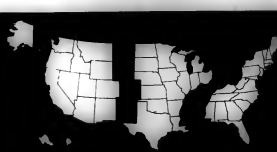
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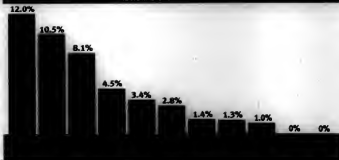
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Marketplace

Project Management Software

By Julie Hart

With Windows on the scene, project management software is more accessible and affordable than ever before. The problem is that selecting the right package is a hefty responsibility.

Project management consultants recommend the following guidelines for testing Windows-based and most DOS-based project management applications.

The best test data is an existing project, but if you don't have one, develop a model of at least 10 tasks for testing. Using this model, calculate schedule and other results by hand to compare with your candidate project management applications.

Task Scheduling

It's important to determine how the packages handle constraints and "float," a capability that shows if a project is running over schedule.

Designate a finish constraint on one of the middle tasks in your 10-task project. For instance, task five—putting the roof on a new house—must be completed by Dec. 1. Based on this constraint, let the package determine the schedule. Also, perform the test in reverse by putting a start constraint on the same task. Compare both tests to your hand-calculated schedule to identify potential problem areas.

Some packages will schedule the roof for completion by Dec. 1 as constrained,

but preceding tasks such as framing the house might not be scheduled until after the roof is completed, says Harvey Levine, principal at The Project Knowledge Group, a consulting firm in Saratoga Springs, N.Y.

Using the same model, you can also verify that the packages properly support forward- and backward-path calculations, which determine both the earliest and the latest possible start and finish dates of each task.

To test this, make the duration of your 10-task project longer than your finish date. After the package calculates a schedule, check the float, which indicates time required or time to spare, to see if it matches your hand calculation.

Resource Leveling

This is where the package schedules your resources (people) in the optimal way. In this area, results can vary greatly among products. "Some packages level so that the results are 50% to 50% longer than the project actually requires," says Daniel Yabbar, principal of Soft Decision, a consulting firm in San Rafael, Calif.

In fact, the same project loaded on a dozen applications may kick out a dozen different answers. "There may be nothing wrong with this, but you need to know which package best fits the way your organization works," says Gopul Kapur, president of the Center for Project Management, a consulting firm in San Ramon, Calif.

To test this theory, add several re-

sources to your 10-task model and determine by hand an optimum schedule. Then ask the packages to perform leveling, spread resources out over the time given and compare the results.

Calculation Speed

Yabbar recommends at least 10 tasks be used to test application speed. To complete this test, perform identical operations, such as resource leveling, and compare the results. You may find a difference of seconds, minutes or hours.

"But there's a trade-off between speed and quality," Kapur says. If the package that requires more time distributes your resources better, weigh what's most important to your organization. Analyze speed results in light of what they really mean to your overall project.

Cost Management

Depending on your organization's needs, there are several areas of concern regarding cost management. For instance, you may need to specify resources at different pay rates, but some packages bill only at a single rate.

Another potential trouble spot is cost

distribution. To determine how each package handles this, enter 10 cost items into your model, such as travel, telephone and hardware, then view the package's estimate. The ideal format for estimate distribution, Kapur says, is by task; however, you'll discover that some packages handle distribution only by deliverable or phase.

"A package might give you overall hardware costs but not hardware costs for prototyping," Kapur says.

System Robustness

A good way to test robustness is to key in junk data and see how the application reacts. For instance, instead of typing ID in the duration field, key in "1a." Or instead of a "y" or "n," try to key in a "z" when the system asks for a yes or no response.

"If most of the junk is taken in, you'll have a lot of problems later on," Kapur says. "A good package won't let you enter wrong information into every field."

Reporting

Make a list of what you want reports to look like and at what degree of detail for four employee levels: team, project manager, manager and executive. Then go into each application, select report features and review the results.

"Too many reports have everything on them, which makes them less useful," Kapur says. For instance, an executive wants to ensure that milestones are being met on budget; he doesn't need to know how many hours Bob and Jane are scheduled to work next week.

Network Access

To test the networking capabilities of candidate project management applications, Kapur recommends that you load 10 LAN nodes for each package you're considering.

"Unless you take the time to run the network version for a couple of weeks and perform backups, you won't really know much about its reliability," he says.

Hart is a free-lance writer in San Jose, Calif.

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Firesign Computer Company is a data communications software developer with 17 years in the business. Having tripled in size during the past two years, this San Francisco-based company retains rep firms on the East Coast and in Europe to service a worldwide customer base that extends as far as Australia and New Zealand. For President Chuck Mills, finding new sales prospects for the company's flagship product Outbound means advertising in Computerworld Direct Response Cards every month.

"Outbound's claim to fame is unattended file transfer. Supporting MVS and VM mainframes and OS/2, DOS, and Windows PC networks, it is the only product whose main thrust is unattended mainframe-to-PC file transfer. Virtually invisible to the PC user, Outbound saves time, provides flexibility, and eliminates training - all while automatically ensuring consistent reliability.

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Computer Industry

Smaller deals paying off for EDS

By Mark Halper

For the fourth consecutive quarter, Electronic Data Systems Corp. has reported sluggish revenue growth, a trend that some analysts last week attributed to a hiatus in the market for huge outsourcing deals, but EDS explained otherwise.

Revenue for the third quarter that ended Sept. 30 barely budged, moving from \$2.06 billion in the same period a year ago to \$2.05 billion. Layoffs and other cost-cutting maneuvers, however, did enable EDS to score a 14.5% profit increase to \$101.6 million.

The Plano, Texas, outsourcing giant said it expects to return to double-digit growth next quarter. In a conference call with financial analysts, EDS painted a bright long-term outlook, noting it is a finalist for a giant outsourcing deal with Lufthansa German Airlines. The deal could be worth as much as \$2.1 billion to \$3 billion, said Merrill Lynch & Co. analyst Stephen McCellan.

EDS also cited an additional estimated \$11 billion in business prospects. It is a finalist for potential multibillion-dollar

deals at British Aerospace and Inland Revenue Service in the U.K. Both British Aerospace and Inland are expected to make a final outsourcing decision by year's end. EDS is also one of four bidders at Xerox Corp., although a Xerox decision on whether it will even outsource could take six months to a year, McCellan noted.

EDS attributed the present stagnation to several factors: a 7% decline in income from business with its parent company, General Motors Corp. (GM), unfavorable foreign currency exchange rates, a high number of contracts winding down and a reclassification of a Korean joint venture that effectively eliminated revenue from EDS books.

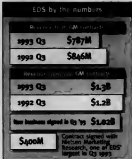
Fewer megadeals

Analysts said that while EDS has racked up a string of small and midsize contracts, in the last year it has won fewer of the \$100 million-and-over megadeals than it has in the past.

Alex. Brown & Sons analyst Cato Carpenter said one reason for the slowdown is that EDS is less able these days to "buy" outsourcing deals by purchasing computer assets from customers in ex-

change for longer term processing commitments.

While EDS' cash holdings are up from \$867.9 million a year ago to \$867.1 mil-



lion, Carpenter suggested that loss-troubled parent GM is "sucking up all the cash [EDS] generates."

He further pointed out that customers in general are not as cash-strapped as they were in the recent past because

many corporations have stashed losses through their own regroupings. "The whole momentum of megadeals is currently on hold," Carpenter said.

EDS said it is racking up enough small to midsize deals to compensate, pointing to bookings of \$4.3 billion in new business this year to date. A spokesman said EDS is on a pace equal to its record booking of \$5.7 billion in new business in 1991.

"There were quite a few in the \$10 million to \$100 million range that don't generate a lot of publicity, but we're very interested in those," the spokesman said.

The company said its non-GM business grew by 7% in the third quarter, from \$1.30 billion to \$1.25 billion. The share of business represented by GM projects, once close to 80%, continued to decline to 39%.

The EDS spokesman said unfavorable currency rates converted to the strong dollar caused a \$70 million hit on revenue. At the same time, EDS continues to feel the impact of having completed long-term projects at the end of 1992 that had been generating \$129 million in annual revenue. Normally, project completions represent the termination of about \$50 million in revenue, the spokesman said.

Select calendar third-quarter financials

Company	Revenue (Q3 '93)	% Chg. from 1992	Net Income (Q3 '93)	% Chg. from 1992
The Alcatel Group	\$1.1B	1%	\$100M	NM*
Aldus Corp.	\$62.2M	37%	\$4.3M	330%
AST Research Inc.	\$265.4M	80%	\$4.2M	8%
Auspex Systems Inc.	\$20M	30%	\$2.4M	37%
Banyan Systems Inc.	\$32.6M	24.5%	\$2.6M	28%
Computer Sciences Corp.	\$622.3M	1%	\$18.3M	7%
Control Data Systems Inc.	\$67.3M	25%	\$3.8M	37%
Convex Computer Corp.	\$43M	25%	\$6.3M	70%
Cray Research Inc.	\$5.2M	26.3%	\$1.5M	23%
Data General Corp.	\$272.4M	3.4%	\$37.2M	NM*
Esael Corp.	\$6.4M	25%	\$1.4M	25%
Electronic Data Systems Corp.	\$206M	NM*	\$19.2M	15%
IBM	\$14.7B	3%	\$1.6M	NM*
Informix Corp.	\$90M	31%	\$14.5M	20%
Micrografe, Inc.	\$15.8M	5%	\$2.5M	55%
Proteon, Inc.	\$28.4M	2.3%	\$1.8M	(6.3%)
Pyramid Technology Corp.	\$25M	3%	\$1.5M	NM*
Ross Systems, Inc.	\$19M	15%	\$1.2M	NM*
Star Electronics, Inc.	\$20M	3%	\$1.5M	NM*
Status Computers, Inc.	\$127M	2%	\$14.4M	23%
Symantec Corp.	\$7M	10%	\$1.5M	NM*
Tandem Computers, Inc.	\$55.3M	4%	\$3.3M	18%
Well Data, Inc.	\$12.3M	32%	\$1.5M	30%

*Not meaningful

The third quarter saw once-captains of the industry continue the struggle to restructure their ranks and right their listing financials while also setting out into uncharted waters. Navigating through client/server straits has proved tricky for many, particularly for those also buffeted by unfavorable currency translation, slow European sales and weakening demand for proprietary systems.

IBM, Data General Corp. (DG), Computer Sciences Corp., Control Data Systems Corp., Stratus Computer, Inc. and Tandem Computers, Inc. all posted less than impressive, albeit mostly expected, earnings for the third quarter. In many cases, the revenue needle stuck or barely budged on a year-to-year quarterly basis.

Although its revenue was flat on a year-to-year quarterly basis, IBM managed to keep its losses for the third quarter to \$48 million, a vast improvement over its \$2.8 billion loss in the third quarter of 1992.

Revenue was down slightly at Control Data from the same period a year ago, but it did see a small profit. Unappeared, President Jim Osley said continuing "economic and marketing challenges in Europe" will impact results in the fourth quarter and into 1994.

With a barely perceptible change in revenue between fiscal 1992 and 1993, Tandem reported a \$617.7 million loss for the year. \$451 million of which was a restructuring charge. The fourth quarter of 1993 was profitable — barely — which Tandem President James Trehy attributed in part to significant cuts in costs, personnel and salaries.

DG may have bailed more woes than its compatriots as it announced plans to lay off "several hundred" of its 6,500 employees in the face of its seventh annual loss in the last eight years. Its \$37.2 million fourth-quarter loss already includes a \$25 million charge to cover the cost of the work-force reduction and unspecified other restructuring actions.

Also suffering losses for the quarter were Convex Computer Corp. and Esael Corp. Esael is late with a product that unites its client/server tools with those of acquired subsidiary Entha Software Corp.

HONORING the BEST



One hundred and forty-eight well-dressed IT executives, corporate sponsors and guests were honored for their achievements at the sixth annual Computerworld Premier 500 Awards banquet last Monday in the Pegasus Suite high atop the 44th floor of New York's 30 Rockefeller Center.

South Corp., under vice president of technical services at Home Shopping Network, Inc., won the "5th Wave of the Year" award for pioneering the development of an innovative Pay-Per-View/Video-On-Demand system that will allow households to access services via on-line telephone line.

Pictured below, Premier 500 dinner attendees listen as Harvard Business School Professor Richard Tedlow describes the statistics that even good companies make if they entered the market.

The dinner, which honors the 500 companies and their IT organizations deemed the most effective in using technology, featured an awards presentation to each of the first-place finishers in 10 industry groups. The top finishers were: The Boeing Co., Dinet Systems, Inc., Banc One Corp., Rubbermaid, Inc., Air Products and Chemicals, Inc., Alexander and Baldwin, US West, Cerebras Engine Co., Abbott Laboratories and White Deer Steaks, Inc.



Elaine Delapp, director of human resources, represented The Boeing Co., which Retained Best in Aerospace



Robert Barnett, president and COO at Banc One Services Corp., accepted the award for Financial Services



Roy Norling, director of the MS Program Systems Group at Air Products and Chemicals, Inc., topped the Petroleum and Chemicals category

The 5th Wave by Rich Tennant

You're Not A CYBERCOW... if you look for the Soup of the Day in the Formal menu.

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Inside Lines

Giving consent

The Justice Department's new antitrust chief, Anne Bingaman, last week assigned its investigation of IBM's outsourcing practices to Ralph Giordano in its New York office. At issue is whether IBM and its Integrated Systems Solutions Corp. subsidiary are in violation of a 1986 Consent Decree. IBM said Justice has transferred all Consent Decree cases to regional offices. Meanwhile, more questions swirled following IBM's services reorganization in which ISRC was intermingled with other IBM groups. The Consent Decree requires arms-length operation of a "service bureau" unit.

Chapter 11 redux?

Memorex Telex Corp., the U.S. subsidiary of Dutch Memorex Telex N.V., plans to file for Chapter 11 bankruptcy protection this month, the second time in two years. The storage products maker, which pulled in more than \$500 million in sales last year, cannot meet interest payments on \$600 million in debt held by financiers Carl Icahn and Leon Black, said a source close to the company. Memorex Telex does not expect to be in Chapter 11 for more than the minimum 90 days required to restructure the debt and convert it to common stock, which Icahn and Black will own, the source said.

Microsoft to say "OLE" to Corba?

Dec. 8 is the deadline for those responding to the Object Management Group's (OMG) request for technology for the interoperability standard for Corba, and sources close to Microsoft and Digital said the two companies are likely to make a joint announcement on Dec. 7 with a major third-party relational database vendor to link OLE with Corba on Digital already offers interoperability support between Microsoft's OLE and Corba, and Microsoft is likely to announce its plans to offer OLE's object interfaces to the C++ for Corba, the sources said. Microsoft officials said they have no current plans to do so.

Back on board

A rejuvenated Everex Systems will next Monday introduce a bold new line of desktops, featuring on-board support for Ethernet and 10Base-T video acceleration, SCSI-2 and sound, as well as the more common on-board VO and integrated drive electronics support. While graphics acceleration is built-in, Everex handles sound and SCSI via an on-board socket that allows users to plug in Adaptec, Inc.'s SCSI-2 chip. An intelligent BIOS automatically senses which components are on the machine and configures it appropriately. The cost for a fully configured system will range from \$1,299 for a 33-MHz 486SX chip to \$2,349 for a 33-MHz DX2 chip.

The more things change...

A slide that Novell presented at a recent analyst meeting lays out one piece of its strategy for selling enterprise computing systems to corporate IS. Titled "Extending strategy to deliver full IT solutions," Systems reveals channel second to none," the slide talked about upping the overall quality of Novell's value-added reseller support. Between 1991 and 1994, Novell will up the number of high-quality Platinum resellers from 225 to 700.

Value days are over

Two months after refreshing the low end of its PC line, Digital is ready to upgrade higher-end models. Models based on Intel's microprocessors and Digital's own Alpha AXP devices are expected to be introduced next week, in both EISA and Peripheral Component Interconnect flavors.

In the "state of the industry" department, Dave Duffield, head of client-server software maker PeopleSoft, said he didn't want to be introduced as "chairman" at a product announcement last week (see story page 36). "Chairman" generally means you're on your way out," Duffield said, referring to several recently departed computer company chairmen, such as John Sculley from Apple and John Akers from IBM. Phone, fax or Computerworld Editor Alison Apler with news tips at (800) 843-6474, (408) 978-5021 or 763/73,178, respectively. Or try Computerworld's 24-hour voice-mail tip line at (800) 820-5555.



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